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GENERAL PHILOSOPHY[1]

IT IS well known how greatly general speculative philosophy has renewed its activity in France during the last years of the nineteenth century and the first years of the twentieth, through the work of Henri Bergson, on the one hand, and of Octave Hamelin, on the other. But whatever boldness modern thought may display in its constructive efforts, it can no longer be solely and completely dogmatic. Whether to establish the foundations of a new synthesis, or to discuss its validity, modern thought must always start from a critical theory of knowledge. Such a theory is found in Bergsonism. This is an exceedingly attractive and strong doctrine, closely akin to pragmatism. Through rigorous analysis, perception and concept are set forth as intended less to make us grasp reality than to guide and favor action, and are subordinated to a kind of direct union with objects through intuition and sympathy. There was likewise a theory of knowledge in the great presentation of universal deduction, that we owe to Hamelin. In this case the theory of knowledge is of such central importance that it is blended with the development of the doctrine itself. Thought, consubstantial with reality, appears as an absolute, and leaves nothing outside of itself that could without contradiction furnish the conditions and elements of existence. It seems that the efforts of French philosophy have been concentrated during these past eight years around this problem of knowledge and have scarcely gone beyond it. But, on the other hand, it

[1] Translated from the French by Gertrude C. Bussey.

is clear that a problem of this kind includes all others: it would not be difficult to extract a metaphysics latent in the great doctrines of the time, even when the writers themselves forbear to formulate one. There is no doubt but that some of these theories tend more to idealism, others to realism; that some constitute at least virtually a monism, while others constitute rather a dualism or pluralism.

What, before the war, was called the "new philosophy," i. e., the philosophy of M. Bergson, has not produced an original work of importance since 1918, even though its influence is noticeable upon practically all the thinkers of this period. The whole philosophical public is, furthermore, awaiting the new work which the author of *l'Evolution créatrice* is preparing. But at least he has collected in one volume under the title *l'Energie spirituelle,*[2] some of his earlier articles, and these gain a new value simply from being brought together. On the subject of the relation of the physical and the mental, in particular, this volume contains some refinements which are essential for an understanding of the question; it includes also the famous, epoch-making article on psycho-physical parallelism, and, in addition, some more limited and more strictly psychological studies on dreams, on intellectual effort, on false recognition and even on "metaphysics." Its interest is, then, of the first order. Furthermore, the great intellectual commotion aroused everywhere by the theories of Einstein, and the overthrow of the idea of time which seems to result therefrom, could not leave indifferent one who had founded all his metaphysics on the essential reality of duration as a reality lived through. Accordingly, in his short volume on *Durèe et Simultanéité,*[3] M. Bergson has tried, by a minute and precise analysis of the new conceptions in physics, to prove that the different times which one at-

[2] Alcan, 1919.
[3] Alcan, 1922.

tempts to conceive are only "measures of time," or "auxiliary times," intercalated by the mind of the physicist between the starting point of the calculation, which is real time, and the point of arrival, which is similarly real time; but in the latter only is there real succession, the latter alone is a duration.

Under the name of intuition, M. Bergson acknowledges a mode of knowing distinct from the abstract knowledge by categories. It permits us to grasp reality immediately. With a different and more traditional terminology, a somewhat analogous conclusion is finally reached on the whole by thinkers who remain attached to positive religious dogma. These thinkers, with M. Maurice Blondel, claim to delineate a form of intelligence which, superior to abstract understanding, models itself upon things by virtue of a kind of natural affinity, and penetrates them more exactly than does positive science which always parcels out and impoverishes the real. This form of intelligence, conceived as it seems in the fashion of Emile Boutroux, corresponds to what is termed "common sense," or "soundness of mind," or "experience of life," closely akin to the Pascalian penetration or keenness of mind.[4]

The traditional religious doctrines, furthermore, are being set forth in our time, if not with originality, at least with an imperious confidence which they seem to have lost in preceding generations; but they more often inspire literary writers or the authors of polemics than philosophers proper. Thomism seems to be acquiring a renewal of influence, not only upon historians, like M. Gilson, but also in connection with dogmatic speculation. In violent reaction against Bergsonism, which has served in its time as a support for some modernists, there is often an appeal from this quarter to scholastic intellectualism. However, if there is a French Catholic philosophy, it has to be sought

[4] *Le Procès de l'intelligence*, Bloud, 1922.

in the works of those thinkers who are somewhat suspected by the scrupulously orthodox, a Le Roy, a Blondel, a Laberthonnière. In the main, the study of this movement belongs at least as much to the history of the literary and particularly of the political ideas of the time, as to the history of philosophy.

It is very interesting to observe how frequently philosophers proper turn away from the traditional problems of philosophy, such as the question of God and the soul, and in a certain sense avoid them. The questions which they prefer to raise are in some sort the preambles to these problems, and, as we have said above, the most original efforts of the time are concentrated upon the theory of knowledge and the theory of science.

Strict positivism still has its representatives, chiefly among the workers in the special sciences. However, M. Goblot in his *Systèmes des sciences,* adheres in general to positivism and declares that there is no philosophical knowledge distinct from scientific knowledge. M. Cresson,[5] for his part, tries to establish once more the claim that metaphysical problems do not permit arguments nor valid proofs. They comprise, in his opinion, the realm not so much of the unknowable as of the unverifiable. It is not denied, furthermore, that these problems may legitimately be raised, but it is maintained that the choice between the different possible solutions can rest only upon the temperament of the different thinkers. M. J. de Gaultier[6] comes to the same conclusion. For him the universe is in its essence only disorder and blind will to live. Both art and science express only the esthetic moods of the men who have invented them and can have only a dramatic value. One should therefore abandon the attempt to derive rules of life from either.

[5] *l'Invérifiable,* 1920.
[6] *La Sensibilité Metaphysique,* 1923.

Considering rather the results of the different positive sciences, and the conceptions of the world suggested by them, M. Rosny, in an erudite volume,[7] has used all his powers once more to establish pluralism. He believes that from mechanics and physics through chemistry and biology, although the mind tends to unify phenomena, the latter present in themselves an irreducible variety and mobility. The laws or types which we define express only averages; the order is only approximate or apparent, and is entirely statistical in character. The intrinsic and basic disorder eludes us by virtue alone of the law of large numbers and of the scale on which we consider phenomena.

The complementary aspect of the same idea is brought to light by M. Emile Meyerson in his profound and learned book on *l'Explication dans les sciences.*[8] Science always aims to reach the real and explain it; but to explain is always to reduce phenomena step by step to one other, making differences and novelty disappear as if they were only apparent, and tends finally to identify them. This fact accounts for the privileged position of the mechanistic conceptions in which all diversity seems to arise from the different position in space of elements which are identical in nature and unchangeable in themselves. But nature and experience lend themselves only imperfectly to this attempt at unification; at long intervals, brute facts appear which are heterogeneous and irreducible to each other, "irrational." Such is, in particular, the principle of the degradation of energy, and philosophical analysis forces us to recognize others, if only the existence of change and of the sensible qualities. Thus there is in turn reciprocal agreement and resistance between nature and unifying reason: such is the spectacle that the universe of M. Meyerson presents to us. Further than this the author refrains from

[7] *Les Sciences et le Pluralisme,* Alcan, 1922.
[8] Payot, 1921.

deducing the metaphysical consequences of his studies in epistemology.

This conception of the struggle between the world which is the source of diversity and the mind which tends always toward unity and assimilation, recalls the conclusions of the already old thesis of M. André Lalande, *La Dissolution opposée à l'évolution,* conclusions which their author has not restated in any new work that has appeared in the period with which we are concerned, but which, sustained by the great authority of his teaching, exercise at the present time an incontestable influence on the philosophic youth of France.

Finally, M. Leon Brunschvicg, in his large and comprehensive enquiry into *La Causalité physique et l'expérience,*[9] as well as in an important study in *l'Orientation du rationalisme,*[10] has defined with deepest erudition what he believes will be the only one possible task of philosophy in the future. This particular task of philosophy is, according to M. Brunschvicg, to make the mind conscious of itself by retracing its own steps and its successive creations through the stages of its secular life, in science first, in mathematics and physics, then in the moral life, and in civilization at large. Basing his study on the most extensive knowledge of the history of the sciences, Brunschvicg derives from it a conception of the relation of experience and reason which is both precise and flexible. As far as the mind goes back into its past history, and analyzes its elementary operations, it never encounters brute data where external reality can be grasped as it is in itself; everywhere it finds itself face to face with itself, i. e., with processes through which, in its inexhaustible fecundity and its unforeseeable ingenuity, it has succeeded in making nature intelligible and in mastering it. But, on the other hand, at every moment of scientific evolution, it is only through the shock

[9] Alcan, 1922.
[10] *Revue de Métaphysique et de Morale,* July, 1920.

of experience that mind has unfolded new resources, and has modified, adapted, reformed, or, at long intervals, upset its earlier constructions. Thus, whether we are concerned with mathematics or physics, experience and reason always make their appearance as inseparable, constituting correlative terms—the one inconceivable without the other. We never encounter anything except ideas, facts, or objects, already worked over and interpreted by the mind, and theories or laws modelled upon the lines of experience. This is a conception of science which may seem quite close to that of the critical idealism of the Kantian variety, with this essential reservation, that for M. Brunschvicg, reason can never be considered as a collection of fixed and unchangeable forms imposing themselves *a priori* upon phenomena; what are called categories, laws, or rational principles are themselves, in the long run, the results of the collaboration of experience and mind, and always remain subject to modification according to the exigencies of this indefinite adaptation, and of this assimilation of one to the other. Finally, if it were necessary to state what reason, or mind, is for M. Brunschvicg, one would define it doubtless as an activity, pure, original, and free, which is no more subordinated to the nature of a supposedly external object, than to the supposed nature of a subject; for the latter, as soon as it is conceived as given once for all, becomes by that very fact object in its turn.

Evolution, incessant and creative, in the life of the universe, according to M. Bergson; evolution in the theories of science, and in the different disciplines of moral life; evolution in reason itself,[11] the instrument of both: such seem to be the conclusions in which the majority of present day thinkers agree. And it might seem that they agree

[11] M. Meyerson who, for a long time, seemed to hold that reason was unchangeable in its principles, and in the demands by which it is manifested, has apparently been converted by Einstein to the idea of a possible transformation of reason. (*La déduction relativistic*, Payot, 1924.)

in some measure with the conclusions of scientific positivism, with the conclusions, for example, of biology, and of contemporary sociology. Indeed, one thinker who belongs to a period anterior in date, but whose inspiration and works are being revived at this time by the faithful enthusiasm of a group of disciples—the obscure and profound Jules Lagneau—seems to bring to the fore the idea of spiritual freedom. This freedom even in rational activity conquers by doubting and at each instant goes beyond its own demonstration and proof. But the distance nevertheless remains great—wide enough to provide place for the whole of true philosophy between empiricism, naive objectivism, or an uncritical positivism, and the profound conviction, which animates all of modern French philosophy, of the ever-present creative activity of mind and of its universal immanence.[12]

And perhaps it is permissible to believe that from this point of view there is still possible a genuinely philosophical interpretation of the world, wherein one will rediscover, over and above the necessary negations, the positive traits which would define a reason whose spontaneity and freedom would not exclude its determinateness and dialectic continuity, in accordance with the eternal conditions of the possible and of the logically necessary and in accord-

[12] This is, in fact, the main inspiration of a remarkable *Introduction à la Philosophie* (Alcan, 1925), which has just revealed a young thinker, M. René Le Senne. Taking his departure from the dialectic of Hamelin, and from relation and categories as expressing the metaphysical conditions of all experience and of all thought, which are but one, he believes that he can discover in contingency and freedom the creative principle which should allow us to go beyond the domains of abstract necessity, and to construct a *concrete idealism*. Over and above metaphysics and science, reason should be able to strive through religion, morality, and art, toward an indefinitely increasing approximation, to the purely individual act which is essentially invention, life, and thought in one.

There are also efforts toward the highest philosophy, and attempts, more or less under the influence of Hamelin, at constructive dialectic, manifested in the work of M. Lavelle, *La Dialectique du monde sensible*, and in that of M. Nabert, *l'Expérience intérieure de la liberté*. On the other hand, M. Rougier has felt obliged to denounce *Les Paralogismes du Rationalisme;* but in so doing he has given perhaps a rather narrow and arbitrary interpretation of rationalism.

ance with the demands of intelligibility: "in the beginning was the Word."

If such are the character and directions of general philosophical speculation in France, we shall not be surprised to find them not only in the universities, where ideas are worked out, but in the classes in philosophy, which are unique in our secondary education, and through which these ideas are disseminated and contribute to the formation of all cultured minds. No state doctrine is imposed upon these classes; freedom of teaching is complete. It is just for this reason that the diverse tendencies of our own times are represented there, and combine, in a thousand ways, particularly the spiritualism of Bergson, the sociologism of Durkheim, and idealism of the Hamelin variety. Evidence of this may be found in text-books, those of M. Malapert, Abel Rey, Challaye, Thomas, l'Abbé Baudin—among which a special place must be given to the excellent *Psychologie* by M. D. Roustan, in which Bergson's influence is dominant.

D. PARODI.

PARIS, FRANCE.

LOGIC AND METHODOLOGY OF THE SCIENCES[1]

IT is commonly said that the French are a nation of logicians. Is that the reason why France has produced few treatises on logic, while there are many such in England, a land where citizens enjoy the reputation of carrying into daily life more intuition and feeling than inclination to reason upon their conduct? There is often a kind of compensation between theory and practice. It is not the men most gifted in business who have written the best books on economics, and the converse is no less true. However in the last few years, there has been a revival of activity in the field of logic. This is due, it seems, to the influence of two men: Louis Couturat, who died in 1914 as a result of an automobile accident incurred in the course of mobilization, and whose remarkable works are therefore anterior to the period with which we are here concerned;[2] and M. Edmond Goblot, Professor at the University of Lyons, whose *Traité de Logique*[3] is the most important and most widely read book in this field published since the war. Although this book shows a thorough knowledge and a fairly extensive use of the ideas put into circulation by Couturat, it is conceived in an entirely different spirit. M. Goblot has shaped his ideas through contact with the ex-

[1] Translated from the French by Gertrude C. Bussey.

[2] Louis Couturat was forty-seven years old when he died. It will be remembered that logistic (following the method of Bertrand Russell) and the logic of language (particularly the logic of artificial languages) were his two favorite fields of study. Both writers, furthermore, are related to Leibniz whom Couturat had first studied in his masterly book, *La Logique de Leibniz* (1901).

[3] Armand Colin, 1918.

perimental sciences. His recent *Logique* is in many respects the sequel and development of an already old study on *La classification des sciences*[4] which had begun as early as 1898 to win him recognition. He there set himself the problem of which his new book has just given a solution, debatable to be sure, but forceful: how can reasoning be at once both rigorous and fertile? If the conclusion is necessary, it is already contained in the premises, and we have tautology; if reasoning can carry thought forward, create something new, there must have been in it something unforeseeable and contingent. The solution is derived, according to M. Goblot, from the distinction between the operations which one decides to perform and the precise rules according to which one carries out each of these operations; the rules are rigorous, but the operations are acts, quite comparable to physical movements which one chooses at pleasure to make or not to make. One observes their conclusion as one observes the effect produced by a manipulation. The rules of logic guarantee their validity, but the initiative of the reasoner is what constitutes their fertility.[5]

Moreover, the *Traité de Logique* of M. Goblot is not limited to this ruling idea. It reviews all the traditional questions, passing rather hastily over many points, but on the other hand treating profoundly and in detail questions in which the author is particularly interested: the theory of hypothetical judgments and inferences, to which he reduces many of the forms usually regarded as categorical; teleological reasoning, by which is demonstrated the relations of finality, relations which, in his opinion, can be given a perfectly scientific and positive meaning; the logic

[4] Published by Alcan; the present form of other ideas expressed in this book may be found in a recent book by the same author, *Le Système des Sciences*, Armand Colin, 1922.

[5] *Cf.* also on this question, A. Roux: *La Raisonement par récurrence; la nécessité et la nouveauté en mathématiques*, in *Revue Philosophique*, January, 1925.

of judgments of value; and, finally, the relations between logic and the rationalism of which he is a vigorous and determined partisan.

This book is today in the hands of all students. But the *Logique* of M. Rabier,[6] which has been frequently reprinted and which was inspired by the teaching of Lachelier at the *Ecole Normale,* and the *Manuel de Logique* of Liard[7] in which much less space is given to general and formal logic than to methodology, are still much used. Moreover, all the manuals of philosophy (rendered numerous by the organization of French secondary teaching and of the baccalaureate) contain a section devoted to logic. It is impossible to cite them all: the manual richest in treatment of questions of logic is that of M. Rey,[8] professor at the Sorbonne; the latest is the book of M. Challaye,[9] professor at the Lycée Condorcet, which is very lucid and well adapted for its purpose.

Classical and even mediaeval logic have been represented by an important work by M. Maritain, professor in the Faculté Catholique of Paris.[10] In it, the author expounds, in modern form but with rigorous fidelity to the principles of St. Thomas Aquinas, the doctrine of the concept, of the proposition, and of the syllogism. He develops in an interesting way and with the aid of the most recent works, the ruling ideas of his master, but he is severely orthodox in his opposition to any position contrary to that of the latter, for example, to logistic and the logic of relations, which he considers as "destructive of a sane philosophy of reasoning."

France, furthermore, has never looked with favor upon symbolic logic. Our mathematicians, after the manner of

[6] Hachette, 1886, 8th ed., 1924.
[7] Masson, 1884, 10th ed., 1922.
[8] *Lecons de philosophie*, Vol. 2: *Logique, Morale et Philosophie générale.* Revised in accordance with the new programs of the baccalaureate. Rieder, 1925.
[9] *Philosophie scientifique et philosophie morale*, Nathan, 1923.
[10] *Petite Logique (Logica minor) ou Logique formelle*, Tequi, 1923.

Poincaré, attach only slight importance to it, and the philosophers are only mildly interested in this technique which they, in general, criticize as being enclosed within itself, without giving evidence of any appreciable fertility in useful applications to other sciences. However, *La structure des théories deductives*,[11] by M. Rougier, the *Maitre de conférences* at the University of Besancon, constitutes an interesting attempt to reform classical logic through reliance upon the works of Mm. Peano, Padoa, and Russell. But the work is not limited to this attempt. The formulae of a mathematical nature take only a secondary place. M. Rougier is in the main a disciple of M. Goblot to whom the book is dedicated. It is true that he disagrees with his former master on the question of which we have just now spoken, that of the novelty of the conclusion. On this point he maintains a doctrine more in harmony with intellectualistic traditions, and more favorable to an idealistic logic which transcends action. Nevertheless, in his ideas on deduction, on the unity of the different forms of reasoning, on *"l'économie des théories deductives,"* there remains a direct kinship in spirit between this book and the *Traité de Logique*. In many respects it appears as the free development of the earlier work, a development which takes advantage of the logical researches of mathematicians, but which received its original orientation from elsewhere.[12]

Mention might also be made of the *Lecons de Logique formelle* by M. Luquet,[13] a text-book of studies of the same kind, but one which exhibits even greater freedom in regard to the logistic already formulated. M. Luquet is professor at the Lycée Rollin, and is already well known through his *Essai d'une Logique systématique et simplifiée*,

[11] Alcan, 1921.

[12] *Cf.* also, on logic and mathematics, A. Reymond: *Sur une définition des ordinaux transfinis*, in *Revue de métaphysique*, May, 1919; J. Richard: *Considérations sur la logique et les ensembles*, *ibid.*, July, 1920; Hadamard; *Les principes du calcul des probabilités*, *ibid.*, July, 1922; Bénézé: *Qu'est-ce qu'un système de reference? Ibid.*, July, 1925.

[13] Alcan, 1925.

which had attracted the attention of specialists twelve years ago. His earlier work was based upon the classical logic, but his new book is in harmony neither with that nor with logistic; notations, principles, demonstrations, practically everything is his own. Although the work in its general aspect is predominantly algorithmic, it makes numerous appeals to intuition, and thereby sets itself in opposition to the ideal purity aimed at in the *Principia Mathematicca.*

Within the field of symbolic logic—or at least within a field adjacent thereto—one may mention, finally, a remarkable little work by Jean Nicod, which shows—in contrast to the work just mentioned—an extreme care for the rigorous criticism of postulates, and for the precise distinction between ideas: *Le problème logique de l'induction.*[14] The author, who died in 1924 at the age of thirty-one, was an excellent logistician who had supplemented his studies in France by several years of study at Cambridge, under the direction of Bertrand Russell. The vigorous work just mentioned, though debatable on many questions, is none the less one of the books which one must have read in order to speak on this problem today. It occasions a high opinion of its author, and a keen regret for his premature death.

We should also connect with logic, at least for an important part of their content, several of the numerous works on linguistics which have appeared during these last years: *Le langage et la pensee*[15] by M. H. Delacroix, and *Le langage,*[16] by M. Vendryès, both writers being professors at the Sorbonne, the one of psychology, and the other of the science of language; and especially, *La pensée et la*

[14] Alcan, 1924. Jean Nicod has also published *La Géométrie dans le monde sensible* (*Revue de metaphysique,* 1924), a very unusual and penetrating logical analysis of perception. (Preface by Mr. Bertrand Russell). He is also the author of an interesting discussion of *La Logique,* by M. Goblot, *ibid.,* May, 1919; of a study on *Les relations de valeur et les relations de sens en logique formelle, ibid.,* October, 1924, and of several English articles in British reviews.

[15] Alcan, 1924.

[16] *La renaissance du livre,* 1921.

langue,[17] by M. Ferdinand Brunot, Dean of the Faculté des Lettres at the University of Paris. The latter work exhibits the great originality of substituting for the old analysis of language, made according to morphological or syntactical forms, a new arrangement, in which the author rather brings together under one head all the verbal forms answering to the same feeling, the same intention, or the same logical function, e. g., determination or indetermination, exclusion, addition, cause, consequence, opposition, possibility, necessity, hypothesis. Experience has already shown that even in teaching grammar to children, this method of approach, from thought to its verbal expression, has evoked a livelier interest than did the former method.

Another aspect of this logical study of language is to be seen in the voluminous work of philosophical semantics which was begun twenty-five years ago, and carried out under the supervision of *la Société francaise de philosophie*, the last part of which (U-Z) appeared in 1922. Each of the technical terms of philosophy is there analyzed, its diverse meanings are distinguished, its equivocations, and the sophisms which result from them, are pointed out, unusual uses or abuses of terms are discussed. All the conclusions upon which the members and correspondents of the society have been able to reach an agreement are incorporated in the main text; but numerous observations in the form of notes contain, over the signatures and upon the responsibility of their respective authors, divergent opinions that could not find place in the article, or accessory remarks that it has seemed useful to preserve à propos of the meaning of the words and the discussions connected with them.[18]

[17] Masson, 1922.

[18] *Vocabulaire technique et critique de la philosophie, Bulletin de la Société Francaise de philosophie*, 1902-1922, and *Supplement*, July and October, 1923. Part of these numbers are at present out of print, but a new edition, revised and enlarged in two volumes, is announced by Félix Alcan to appear in July, 1926.

But the field of logic wherein the French have been pre-eminently active is that of epistemology, understood in the sense which we give to the word, and which is not quite the same as that which it has in English-speaking countries, i. e., the study of the method and structure of the positive sciences. In this domain, I should not hesitate to analyze, first of all, the very remarkable book of M. Brunschvicg, *l'Expérience humaine et la causalité physique*[19] if it were not that it goes far beyond our field of study in two directions: on the one hand, this work is conceived on an essentially historical plan, and, on the other, it carries its conclusions to the most ultimate problems of the philosophy of mind, and of its relation to nature. A very profound analysis of this book will be found, however, in the preceding paper, devoted to general philosophy and to theories of knowledge.[20]

On the other hand, we are in the very center of French epistemology with the two works of M. Emile Meyerson, *l'Explication dans les sciences*,[21] and *La déduction relativiste*.[22] There are few works on science which are so much read and discussed by the younger generation of philosophers. They are the natural sequel of *Identité et Réalité*, which for a long time has assured the reputation of its author, and they develop the same ideas by commenting upon them or applying them. *L'Explication dans les sciences* is a freer and more popular exposition of the subject; to explain is to show that what appears new is reducible to something that existed before; that which seems different in appearance is for reason reducible into like elements. Hence the increasing use of mathematics in the sciences, for all calculation presupposes the repetition of identical units.[23] But this truth leads to a conclusion which

[19] Alcan, 1922.
[20] *Cf.* above article by M. Parodi, p. 359.
[21] 2 vols., Payot, 1921.
[22] Payot, 1925.
[23] In *L'Explication dans les sciences*, Vol. 2, Ch. XVII, there may be found a remarkable account of the development of these ideas.

M. Meyerson has himself named "the epistemological paradox." On the one hand, science is realistic, in so far as it involves prevision and the power of acting upon things; on the other hand, it tends to annihilate everything through explanation, for nothing exists but differences, and if everything were identical nothing would be. It was precisely to escape this consequence that Hegel, renouncing classical logic, wished to banish mathematics from the philosophy of nature and to explain everything by his concrete universal. Thus the name of Hegel is the one which appears most often in the work of M. Meyerson, who is at the same time both his friend and his opponent—his opponent considered as a physicist, his friend considered as a critic of the philosophical consequences which result from explanation through homogeneity. *La déduction relativiste* is an application of the same principles to the theory of Einstein. The author has not here attempted to give a popularization of the theory but to trace its psychology. He has collected the assertions or the characteristic expressions of the principal relativists: Einstein, Eddington, Langevin, Weyl, etc., and tries to show that the great motive of their work, as well as the great factor in their success, is to be found in their progress towards a complete assimilation of phenomena—a progress so considerable that some become afraid of the complete identity which they foresee, and react against the vertigo of universal dissolution.

With these ideas one may compare *Le mensonge du monde*,[24] by M. Paulhan, who, however, considers the subject in its psychological and metaphysical rather than in its logical aspects. He also is one of those who have perceived this character (strange at first) of scientific thought. But he does not make of it the backbone of epistemology as do the authors of whom I have already spoken.

[24] Alcan, 1921.

The same thing may be said of another work of M. Rougier, whom we have already mentioned. It is a very interesting and well informed collection of articles on scientific philosophy, which bears the title *En marge de Curie, de Carnot, et d'Einstein*.[25] The principle of the degradation of energy and the principle discovered by Curie (that effects are always as symmetrical as, or more symmetrical than, the causes) are presented as two remarkable forms of the tendency of phenomena to become uniform spontaneously. Strictly speaking, these laws are not interpreted in the same way by everyone. M. Meyerson sees in these leveling principles an irrational character, because they are a blow to the principle of conservation. Others, on the contrary, have tried to show that they are in essential conformity with reason, inasmuch as they tend in the direction of identity.[26] But this very discussion may give a fair hint of what are at present the themes debated in the logic of the sciences.

It is too late now to return to the relativist movement of Einstein which passionately interested the French public from 1921 to 1923, but which seems today to have been cast somewhat into the shadow by other preoccupations. There remain, however, as witnesses to this movement not only numerous reviews[27] and a whole library of popularizations, but also some very original reflections by M. Bergson himself, in *Durée et Simultanéité*.[28] These last have occasioned many discussions to which the author has replied in the addenda to the second edition. Public opinion has remained uncertain concerning the solution which he proposed, and it does not appear that the verdict will be given for a long time.

[25] Chiron, 1921.

[26] *L'Epistémologie de M. Meyerson et sa portée philosophique*, in *Revue Philosophique*, March, 1922; *La déduction relativiste et l'assimilation*, in *Revue Philosophique*, March, 1926.

[27] Particularly, *Bulletin de la Socété de philosophie*, July, 1922; *Revue philosophique*, same date.

[28] Alcan, 1922. 2nd ed., 1923.

On the other hand, problems which concern the nature, method and co-ordination of the sciences are always the subject of numerous publications. Mention has already been made of *Le système des sciences* by M. Goblot. A short while before his death, M. Pierre Boutroux wrote a little masterpiece, *L'idéal scientifique des mathematicians*,[29] which summarizes and completes his large work on *Les principes de l'analyse*.[30] In the same collection have appeared *L'espace et le temps*,[31] by M. Emile Borel, professor at the Sorbonne, and *l'Unité de la science*,[32] by M. Leclerc du Sablon, formerly dean of the Faculté des sciences at Toulouse. M. Rey has published a new and greatly enlarged edition of his thesis: *La théorie de la physique chez les physiciens contemporains*.[33] *La méthode générale des sciences pures et appliquées*[34] by M. Lamouche, a naval engineer, is an important work animated by a markedly instrumentalist spirit. The author aims to maintain throughout a direct contact between the most general ideas and their technical applications, and believes that only minds capable of grasping and comprehending this double aspect of ideas, combine in themselves the necessary conditions for speaking with competence about them. The book is a little long, but substantial and instructive. Personal talent, imagination, originality are, on the other hand, the dominant traits exhibited by the book of M. Rueff, *Des sciences physiques aux sciences morales*,[35] in which the author analyzes the use of mathematics in the physical sciences in order to show how its use may be extended to the moral sciences and particularly to economics. Finally

[29] Alcan, 1920 (New scientific collection).
[30] 2 vols., Hermann, 1914 and 1919.
[31] Alcan, 1922 (New scientific collection).
[32] Alcan, 1919.
[33] Alcan, 1923.
[34] Gauthier Villars, 1924.
[35] Alcan, 1922.

numerous articles on methodology have found a place in our principal philosophical reviews.[36]

A serious disadvantage of asking a specialist to summarize the movements in the field of his science is that he is forced either to be incomplete or to speak of his own works. Entrusted for the past twenty years with the work in logic and methodology at the Sorbonne, the author of the present article has had there as students a large number of the young professors who are at present teaching in the "classes of philosophy"[37] at the Lycées and colleges. He believes, therefore, that it will not be out of order to indicate what have been the dominant ideas of his own teaching.

Their origin lies in a reaction against the Spencerian interpretation of the positive sciences, which was still dominant at the beginning of this century, and which despite all that has been said against Spencer, still has great weight in the minds of many scholars. However, if one reflects upon it with a critical mind, one perceives clearly the insufficiency of "differentiation" to represent even the physical order with its spontaneous tendency toward uniform distribution of energy, still more its inadequacy to the moral, aesthetic, and religious orders, where there is manifested throughout an "involution," a progress toward identity. It is necessary, then, to recognize two opposing currents in the world, the one vital, the other manifested both above and below the biological level, in degradation of energy on the one hand, and in the constitution of

[36] Among the articles may be cited particularly, Dorolle: *La Valeur des conclusions par l'absurde*, in *Revue philosophique*, Sept., 1918; Halbwachs: *L'experimentation statistique et les probabilités, ibid.*, Nov., 1923; Déat: *La demonstration par l'absurde en psychologie et en morale, ibid.*, Jan., 1924; Lacombe: *L'interprétation des faits matériels dans la méthode de Durkheim, ibid.*, May, 1925; Winter: *Les axioms de la physique differentielle*, in *Revue de metaphysique*, Jan., 1924; Dupréel: *Convention et raison, ibid.*, July, 1925. See also *La Revue de synthèse historique*, directed by M. Henri Berr, as published by La Renaissance du Livre. We mentioned above, in connection with formal logic, various other reviews concerned with mathematical method.

[37] In France elementary instruction in philosophy is given to all students who carry on their secondary studies, even if they do not go to the universities.

human values on the other. Between these there is a parallelism from which important consequences can be deduced.[38] Many of these concern only remotely the subject of this article; but, among others, may be found the incontestable proof that logic is a normative science, not in the sense that it can conclude from ascertained facts to bounden duties, but in the sense that it moves entirely in the normative realm of obligations, and that the most fundamental position of logical thought, "*p* is *q*," means that one has not the right to deny *q* when one has affirmed *p*. It is hardly necessary to point out the agreement of this thesis with the one which regards the concept as logically posterior to the judgment of which it is an abstraction, or a result. But it is in my opinion, the only way to give a reasonable answer to the question of the principle and basis of induction set forth hitherto in such an ambiguous way.[39]

From this point of view, logic is plainly distinguished from psychology on the one hand and from symbolic logic on the other.[40] The latter must not be considered as the substance, but as the auxiliary of reasoning, with a role comparable to that which may be played in the aesthetics of music, by the notation on the staff, or by the symbolic theory of harmony. A *purely formal logic* does not even exist. Not only must the algorithms be handled like things, furnishing no results except on this condition—in this M. Goblot seems to me to be quite right—but they do not assume a logical character unless they cease being a simple assemblage and are interpreted as proof of the true and false. It is by catachresis that one speaks of the "formal truth" of a proposition, in order to say that it followed necessarily from certain hypotheses; what is true is the assertion that it *does* follow from these hypotheses, and

[38] *Cf. Le Parallélisme formel des sciences normatives*, Report of the Congress of Bologna, 1911; *Revue de métaphysique*, July, 1911.

[39] *Cf. Revue des Cours et Conférences*, Feb. 15 and 29, 1924.

[40] *Sur les rapports de la Logique et de la Psychologie*, in *Scientia*, 1915, Williams and Norgate.

this truth is no less "material" and "ascertained" than the cubical form of a salt crystal.

This, naturally, does not preclude our recognizing that symbolic logic has rendered immense service in analyzing judgment and reasoning. It has brought into relief the distinction between the existential and the non-existential; and the invalidity (or more exactly the incompleteness) of reasoning which moves from the universal to the particular. It has generalized the useful notion of a universe of discourse. It has shown the independence of principles formerly confused; the importance and extent of correct operations which are not reducible to the classic types; the real complexity of some of these; the generality of the conclusions based on the formal properties of various relations. All these results may be incorporated into formal logic, taken in its broadest sense. Formal logic should also develop the different properties included under the term intension, subjective and objective; intension, optative, complete, implicit, eminent. It should similarly analyze in a more exact and complete fashion the extension and quantity of propositions. When all these distinctions are correctly made, many prejudices and pretended principles and equivocations seem to disappear, such as that which states that extension is in inverse relation to intension, or the futile classic discussion as to whether the true point of view of logic is that of intension or extension.

These foundations assured, there can then be demonstrated, I think, an important distinction which is too often misunderstood or improperly expressed, that between the operations of reasoning (a syllogism, a transformation of an equation, a substitution of a constant for a variable) and the conduct or general structure of reason, which can I think, be reduced, at least tentatively, to four types: the hypothetical—deductive; the inductive or experimental; the reconstructive, of which the principal application is in

history, but which is also of great judicial interest; the polemic, of which a good example may be found in the *Nouveaux Essais* by Leibniz, or the *Philosophy of Hamilton,* by J. S. Mill, and to which are related problems as characteristic as the burden of proof. I would not present this list as definitely complete, but it seems essential to set forth this general methodology and to distinguish it clearly both from the logic of operations, and from the "special methodology" (the methodology of each particular science) which forms its field of application.[41]

Further, if logic is really normative, it ought to eventuate in a precise conception of the true and the false, as well as of related ideas such as certainty and error. I say "eventuate in," for the method of normative sciences seems to me to proceed by induction, like the natural sciences, with the changes implied by the difference between the experience of a sensible fact and that of the judgment of appreciation. Nothing would seem to me more inadmissible than the old pretention of dogmatism and even of certain forms of criticism that one grasps the fundamental laws of the mind by an immediate act of reflection; but it is no less true that, in this case as well as in others, in proportion as an inductive science develops, its outcome should tend to be transformed into a possible principle.

Does this method authorize us at this time to give any answer to the question, "What is truth?" It seems to me that that is true which any mind feels the obligation of recognizing in the absence of seduction or of constraint, provided only that this mind has reached the stage of cultural development necessary to understand the meaning of the proposition, concerning the truth or the falsity of which the

[41] All these logical "conducts" have been treated in courses taught in the past years, but only one has been published: *Les théories logiques de l'induction et de l'expérimentation,* in *Revue des Cours et Conférences,* December, 1922, February, 1924.

question is raised.[42] This gradual agreement of minds among themselves, of which the analysis of the sciences furnishes a continual illustration, is the most easily discernible aspect of a triple assimilation that gives a more complete answer to the question: viz., assimilation of minds to each other, assimilation of things to each other, assimilation of things to minds.

This triple assimilation is the great motive of what is commonly called the necessity of reason, or "rational truths." It has become impossible to admit that the *a priori* forms of space and time, the principle of causality or that of continuity have remained invariable in the historical movement of thought. Some forms of reason which earlier epochs have not recognized appear as possible and convincing. Reason as it is constituted at each moment is transformed to a certain degree. But is not this to fall into scepticism, to put feeling above reason? No, because throughout its transformation reason exhibits a vector, a definite direction which can be characterized in an unchanging fashion as supremacy of identity over difference. This constitutes the fundamental logical value (even though it may not, as yet, be wholly conscious) and appears as the essential norm of Constitutive Reason. Constitutive Reason is active, but cannot be apprehended in its pure state. Constituted Reason at each epoch may express itself in formulae, but this is because it is incorporated in a matter furnished by experience. It includes: *first,* acquired truths, categories hallowed by use, values held in common; *second,* rules of thought, i. e., of effective logical procedure, having authority in discussion; *third,* rules of conduct which it is sufficient merely to mention, since our subject is not concerned with practical reason; and, finally, even rules of aesthetic judgment, which are just beginning

[42] *Cf.* for a detailed exposition of this theory, H. Lelesz: *La conception de la Vérité,* published by *La vie universitaire,* 1921.

to be worked out.[43] Therefore, in what constitutes the very soul of logic, one finds (as one should if rationalism is *true*) the same spiritual function that gives birth to the other normative sciences, and that constitutes the *a priori* factor of their observable parallelism.

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[43] *Cf.* the lessons entitled *Raison constituante et raison constitueé*, in *Revue des Cours et conférences*, April 15 and 30, 1925 (publisher, Boivin) and *Lettre à M. Brunschvicg*, in *Bulletin de la Société de Philosophie*, July, 1921 (Publisher, Armand Colin).

PRINCIPAL CURRENTS OF ETHICAL THOUGHT[1]

IT is impossible to speak of the flux of ethical conceptions in France during the last six years without a preliminary reference to the lessons of the war. For so great a catastrophe, if it does not strike a direct blow at speculative thought, at any rate compels a reconsideration of the problems representing the very life of society itself. The special problems revived or created by the war, however, demand a separate investigation devoted solely to them, and this task we have attempted elsewhere.[2] We may therefore be excused from here touching upon them. Moreover, during the last seven years life has resumed its normal course, the new problems have been brought into connection with the old, and the great currents of French thought are reappearing in ethics as well as in the other disciplines.

Three great ethical currents may be distinguished: the sociological current, properly so-called, represented by the school of Durkheim and of M. Lévy-Bruhl; the opposition thereto, which, starting from a positivism that is not of Durkheim, issues in a rationalism, that is often radical, but

[1] Translated from the French by Edward L. Schaub.

[2] *Quelques réflexions sur les idées morales après la guerre*, in *La Revue de métaphysique et de morale*, 1921. Questions discussed: 1. Legitimate defense and non-resistance. 2. Force and law. 3. Religious ethics and secular ethics. 4. Rationalism and sociology. 5. The difficult wisdom.

We also take for granted a knowledge of the main currents of French ethical thought prior to 1914. An account of them may be found in a chapter, "The Moral Problem," of a book by M. D. Parodi on *La philosophie contemporaine en France*, Alcan, 1919; a new edition has appeared, with an elaboration first in *La Revue Philosophique*, Nov.-Dec., 1925.

exclusively secular; and, finally, the current of religious ethics which is opposed to both the sociological school and the purely secular rationalism. In addition to these three great currents, there are some suggestive attempts to maintain, in ethical thought, intuitive or irrational tendencies. Moreover, legal and political doctrines are themselves throughout permeated with the same antagonistic influences.

I. Ethics and Sociology

The most important work in the field of ethics offered by the sociological school up to the last few weeks is M. Lévy-Bruhl's book, *La morale et la science des moeurs*, published in 1903. Here we find stated the creed of this school. Durkheim himself had treated these questions in only a fragmentary manner in his *Division du travail social* and in his note on *La détermination du fait moral*.[3] The course in ethics which he offered in the Sorbonne had until just recently remained unpublished. But it has now appeared under the title *l'Education morale*.[4] This is indeed a strong and admirable book, in every particular exhibiting the hand of the departed master. It creates a profound impression as much by its logical rigor as by the singularly gripping, even imperious, tone of some of its pages.

The thought of Durkheim is clear. He wishes, as he says, beginning with the very first of his lectures, to develop a secular system of morals, that is, one that is purely rationalistic. He starts with a postulate which he expresses thus: "There is nothing in the realm of the real that need be regarded as radically opposed to human reason." But it is important that we clearly understand this

[3] *Bulletin de la société francaise de philosophie*, sessions of Feb. 11 and Mar. 22, 1906.

[4] Alcan, 1925. Brought out by Paul Fauconnet, *Maitre de conferences* at the Sorbonne.

rationalism. On the one hand, it is unalterably opposed to mysticism, according to which there is at the basis of things something unintelligible, "I know not what principle of darkness, forever refractory to reason." But Durkheim is equally disinclined to a rationalism that is "too easy," and too simple, and does not take into sufficient account the complexity of things. It is between these two "abysses" that the child must be led and doubtless also the adult.

Moral education, according to Durkheim, is all the more necessary in our age because of the fact that we are passing through a period of grave crisis; "we are living in one of those revolutionary and critical epochs in which the authority of traditional discipline, always enfeebled in such periods, may easily give way to the spirit of anarchy." We recognize here an idea that goes back to Saint-Simon and Comte. We can see how it comes that Durkheim insists on the necessity of a spirit of "discipline" as the first essential of morality. The second principle, likewise to be found in the thought of the positivist, consists for the founder of the existing sociological school of France in "the attachment to social groups," among which, when we are dealing with the child, is the school. In the preface to his *Division du travail social,* Durkheim had already insisted upon the importance of professional groups as a means of introducing the individual to society. In treating of education, he emphasizes the similar role of the school. The family is too much dominated by sentiment; humanity is too vast and too remote; the Fatherland which "enjoys a real priority over all the others" cannot accomplish its humanizing function unless the school arouses a love for it. One can thus understand the "supreme importance of the function which falls to the school in shaping the moral life of the country."

By means of this stern discipline and of this attachment to social groups, Durkheim seeks to maintain in social life an imperative rule which has been described as a revival, in a different form, of the categorical imperative of the Kantian ethics. Instead of conscience, it is society that commands; or rather, the requirements of society and those of conscience are identical. This does not mean that Durkheim demands absolute conformity to laws and customs. The third element in morality, according to him, is the "autonomy of the will," and here again the author of *l'Education morale* is in accord with the author of the *Kritik der praktischen Vernunft*. Rationalism, far from being contradictory to individualism, presupposes it. Society includes not only forces of tradition but also forces of regeneration and progress, and it is for this reason that the educator cannot be content merely to expound "the traditional morality of our fathers." "It does not suffice to conserve the past; it is necessary to pave the way for the future."

Such are the ruling ideas of this work *l'Education morale*. One need not look beyond it to gain a knowledge of the ethical theories of the French sociological school. For this edifice Durkheim expected to furnish a rigorously empirical foundation. For him, as for M. Lévy-Bruhl, the type of ethics just described is truly scientific—indeed, it alone is scientific. The posthumous work of the master of the Sorbonne brings dire destruction upon theoretical and abstract systems of ethics; these, to him, seemed antiquated. A system of ethics must be concrete and this concrete authority, though transcending the individual, is the authority of society: "what is necessary is to place the child in contact with things, with concrete and living realities in respect to which abstract terms express only the most general characteristics. Thus we show what the thing really is. And thus moral education acquires a real hold."

Taking their inspiration from the master and placing special emphasis on certain aspects of his doctrine, his followers have attempted to revive several of the most imporant questions of traditional ethics. Thus, M. Paul Fauconnet has reattacked the problem of responsibility[5] which M. Lévy-Bruhl had previously treated in a classic manner. At the present time the idea of responsibility is commonly associated with those of liberty and of individual merit or guilt. But the latter, says M. Fauconnet, are entirely modern conceptions, representing a departure from and an abandonment of primitive responsibility. In primitive cultures, responsibility is collective and does not, as in modern times, relate exclusively to individuals. The function of pain is not so much to punish the guilty as to restore order in the social group shaken by the misdeed. It follows that sociological ethics, in the minds of its exponents, undermines neither the idea of responsibility nor that of duty, though it justifies these conceptions in its own way. And the same holds of the idea of contract, even if one believes with M. Georges Davy, that its origin is to be found in the institution of "potlatch."[6]

The necessity is already being felt of supplementing these particular studies with a general science of moral facts—a science for which another disciple of Durkheim, M. Albert Bayet, has suggested the name "ethology."[7] M. Bayet, however, more radical than his master, advocates the elimination of every normative tendency as distinctly contrary, in his view, to the spirit of scientific research. He seeks to limit himself exclusively to the study of facts, whatever their complexity and difficulty of comprehension. "When ethology shall have come into existence, the practical applications will doubtless appear of themselves." The moral fact concerns the distinction of good and evil in the

[5] *La responsabilité*, a sociological study by Paul Fauconnet, Alcan, 1920.
[6] G. Davy: *La foi jurée*, Alcan, 1922.
[7] Albert Bayet: *La science des faits moraux*, Alcan, 1925.

field of social phenomena, requirements, languages, laws, customs and literatures. To establish facts through a search for laws which, as in every science, is free from any but an exclusively scientific interest—such is the task which M. Bayet assigns to the sociologist. He has himself exemplified what he requires in a comprehensive study on suicide.[8]

Sociologists, even those of the school of Durkheim, are not equally convinced that moral ends may be determined by exclusively scientific methods. M. Bouglé is unquestionably persuaded that the scientific study of ends considered as facts is the prime necessity; "but," he queries, "to arrive at a knowledge of these ends, can and ought one henceforth limit one's procedure to that of scientific investigation? That is another question." And, like Durkheim, M. Bouglé asserts that the reasoning of the moralist who forms and co-ordinates value judgments "is something more peculiarly rich and flexible than the reasoning employed by the scholar when he is engaged in demonstration and verification, and occupies himself with the intentionally delimited field of positive science."[9]

II. Positive Ethics, Moral Rationalism, Ethics and Bergsonism

The recent works of the sociological school, then, leave standing those criticisms which had been directed, from a strictly ethical and normative point of view, against the very principles maintained in these works. It is, indeed, necessary to examine moral facts objectively and empirically, but from such an examination one must not deduce rules of conduct. Durkheim's *l'Education morale* does

[8] *Le suicide et la morale*, Alcan, 1922.
[9] *Leçons de sociologie sur l'évolution des valeurs*, pp. 239 and 242, Colin, 1922.

not enable us any more than does the *La morale et la science des moeurs* to understand why we ought to acquire the spirit of discipline and of attachment to social groups upon which the author lays so much stress. No more can one derive from facts an obligation to realize the "normal" type. We indeed understand very well, in reading M. Fauconnet, how the idea of responsibility is transformed in the process of becoming individualized. But ought we to regard this development to individual responsibility with favor, or ought we, on the contrary, to resist it, striving to revive the collective responsibility of primitive society? Is "simple morality" which condemns suicide preferable to the "differentiated morality" which sometimes condones it? Such are questions for which purely sociological studies have no answer.

Nor has there been any weakening in the current of resistance to the methods of the school of Durkheim. Some moralists, while carrying on their investigations in a strictly empirical spirit, warn against confusing positive and positivistic no less than social and sociological. M. Gustave Belot, in re-editing his *Etudes de morale positive*,[10] has pointed out that we must take into consideration not merely the actual society that impinges upon man but also the will of society that urges man on to the realization of a type of society ever more conformable to the moral ideal represented by the most developed consciences of the time. In other words, just as there is, superior to the purely physiological ego, the ego which tends to realize the idea that it has formed of the moral person, so "superior to the society which makes man and to which Comte and his epigones have been fond of ascribing the genesis of man's superior qualities, there is the society which man makes according to a certain slowly elaborated conception of the human ideal." Thus the idea of the end, and of the volun-

[10] New edition in two volumes, with a second preface and two new studies: *Régle et motif* and *La valeur morale de la science*, Alcan.

tary end, deliberately chosen as that which most conforms to man's moral nature, reappears in ethics. It is this that M. Belot has in mind when he asserts that we are concerned not with the discovery of an already existing will but with the creation of a will, being assured from the outset that the rule imposed by the reflective conscience rediscovers and justifies the social instinct as the supreme moral motive. This distinction between the rule and the motive, according to M. Belot, satisfactorily removes numerous theoretical difficulties.

But why does the reflective conscience confirm the social interest? Why does man desire the existence of moral ends? To this question there is as yet no very clear reply. Hence M. Parodi still finds an "element of arbitrariness and of ultimate irrationalism" in the teaching of M. Belot.[11] M. Parodi, as well as M. Paul Lapie, seeks the reply in a "moral rationalism" integrated within rationalism as a whole. There are not two forms of reason, one theoretical and another practical, which might be conceived as diverse; there is but a single reason which builds up both science and ethics, employing the same methods in both fields. Moral ends are established by reason and are obligatory as scientific truths, inasmuch as "all recognized truth contains an obligation." One can no more logically escape from the obligation of conforming his conduct to a rule recognized as rational than one can escape the necessity of drawing conclusions from a rational demonstration. In brief, the determination of the good has its ultimate basis in reason, "the same reason which constructs mathematical and theoretical knowledge."[12] "Reason," writes M. Lapie in the same vein, "is practical as well as theoretical. It is

[11] *La philosophie contemporaine en France*, p. 361, Alcan, 1919.

[12] *Le rationalisme moral*, pp. 475-480. Address at the *Congress International de philosophie* held in Paris in 1921. M. Parodi has also published a new edition of his work, *Le problème moral et la pensée contemporaine*, Alcan, 1921.

alike a spring of action and a torch of intellect."[13]

With respect to these matters there is no essential difference between M. Parodi and M. Belot, except that the latter supplements the rational conception just described with a sociological content defining concrete duties. But this moral rationalism, in turn, has encountered adversaries. M. Felix Pecaut has pronounced it very "narrow."[14] Formal universality seems to this anti-Kantian "a thing extremely empty, empty to the point of nothingness," "complete ennui." He demands moral realities that have more body, such as sympathy or sociability. To this M. Parodi has replied that moral rationalism can no more dispense with affective state than can intellectual rationalism with experience, but that reason must order the former as well as the latter; in any case, rational ethics is "in the same position as science."[15] We here notice a well marked contrast between two "spiritual families."

This antithesis becomes still more apparent when we pass from these more or less rigorous rationalists to those who, like M. Alfred Loisy, do not expect to find in reason the justification of moral facts. The difference relates not to the content but to the justification of duty. In entire agreement with M. Parodi, M. Belot and Durkheim, M. Loisy believes that moral life is possible only within society, so that it is the latter which is the source of duty. In a spirit very similar to Durkheim, M. Loisy goes even so far as to say that the moralist cannot create morality; he can only discover it. Solidarity is a duty because it is first of all a fact. But after having thus disengaged morality from all metaphysical connections, Loisy directs all of his

[13] *Revue pédagogique*, Oct., 1925, p. 250. M. Paul Lapie is Rector of the *Academie de Paris*.

[14] M. Parodi, M. Belot and M. Pecaut are inspectors general of public instruction.

[15] Discussion that followed M. Parodi's address at the *Congress International de philosophie*. *Cf.* also, *Morale et Science* (lectures delivered at the Sorbonne), Paris, Nathan, 1923.

energy against the rationalists.[16] Morality, for the Professor of the History of Religions at the College de France, is not rational, but is "mystical." It is "human" but it is also "religious." Let it be realized that morality is not a science; "morality is a spirit, the social instinct developed into the spirit of justice and of devotion." Let it be realized that it has nothing to do with any positive religion but with an always living faith which communicates itself not by demonstration but by a sort of "spiritual contagion" and which enables us to labor "for the realization of a single, holy, universal and abiding humanity, a veritable church of the spirit."

One can perhaps understand that such a doctrine is capable of arousing an ardor that is truly contagious, but one can also understand the criticisms of the rationalists. It is all very well, reply the latter, to exalt faith, but who will guarantee for us its authority if it will not submit itself to reason. "No," writes M. Lapie, "neither the intuition of the ideal nor the anticipation of its realization is foreign to reason; neither is an item of knowledge superior to intellectual knowledge. Let us reclaim for reason the entire domain of which M. Loisy has wished to dispossess it."[17] What remains true is that one must not think of rationalism in too narrow and circumscribed a way. And one comes to the distinction made by Durkheim.

What follows when one rejects every rational criterion is clearly shown by the example of those who are consistently irrationalistic. For M. Jules de Gaultier, who is a representative of this tendency, rationalism is absurd; it is but an "official philosophy" which sets itself in opposition to true philosophy. For him, reality is at the bottom blind and aimless. Every doctrine, when closely regarded, is but

[16] *La morale humaine,* Nourry, 1923. M. Loisy is Professor in the *College* de France.

[17] *Revue pédagogique,* Oct., 1925. See also an article by Mme. J. Jacob, *Revue de metaphysique et de morale,* 1924, No. 3.

"an impassioned expression of an emotion" and these emotions eternally clash. No recourse remains therefore but that of observing this scene without attempting to change it; the emotion should become an object of observation.[18] The abandonment of ethics in favor of aesthetics—of an aesthetics which may lay no more claim upon truth than may ethics—this, indeed, is the inevitable outcome of irrationalism.

The adversaries of irrationalism, however, are not all in agreement with one another. Between pure rationalists represented, among others, by M. Parodi and M. Lapie, and the pure irrationalists who are led to deny the existence of moral rules, as does M. Jules de Gaultier, there is an intermediary group that allies itself with pragmatism. One would call it Bergsonian if M. Bergson had himself directly treated moral problems. But the work upon which we know that the author of *l'Evolution créatrice* is engaged has not yet seen the light of day. Meanwhile there are disciples, who, inspired by his doctrine, have supplied the omission of their master. M. Pradines denounces the "moral error" of rationalism; in the latter he sees only "an allurement of nothingness." Then he attempts to establish a morality of action designed as an essential part of his "philosophy of action." Reason appears only as "a method whose fruits are the moral precepts."[19] M. Joseph Wilbois, on the other hand, has made an extremely original and suggestive attempt at a Bergsonian ethics that seeks likewise to preserve the results that may henceforth be acquired by the sociological school. For M. Wilbois duty is based neither on rational principles nor on empirical data. It is a primary reality which is at once impossible and useless to prove. But it can be identified. It is characterized by two features, endeavor and generosity, as one can see in the

[18] J. de Gaultier: *La sensibilité métaphysique*, edition of *le Siecle*, 1923.
[19] *Cf. l'Erreur morale* and *Principes de toute philosophie de l'action*, Alcan. M. Pradines is Professor in the University of Strasbourg.

case of the individual as well as of humanity. Creative evolution becomes creative progress and this progress, although free and unpredictable, realizes itself through sociological determinism. Moral effort, the human equivalent of the *élan vital,* creates institutions and then leaves them behind in a perpetual striving for moral invention. "A morality that grows without ceasing is basically involved in an ultimate definition of man."

The rationalists have not failed to reproach this ethics, along with all purely pragmatic doctrines, with "subjectivism." Pragmatists, as we know, throw back the criticism and accuse rationalism of itself being subjective. When the issue is thus formulated, the debate is fruitless. But that which, in the eyes of most of the pragmatists, saves them from the accusation of arbitrariness, is the fact that, beyond the individual and the purely human reason, they conceive another truth, a transcendent truth, which is the absolutely religious truth. We are thus carried to another plane and the debate acquires a new breadth.

III. Ethics and Religion

M. Bouglé discussed the theories of M. Wilbois before the *Société francaise de philosophie.* In characterizing them, he contended that M. Wilbois supports on two columns of such different styles as intuitionistic pragmatism and sociological determinism, a "Catholic capital." The author of *Devoir et durée* did not defend himself. "The hand of the transcendent," he writes, "forms and upholds us, cradles us, chastises us, and pierces us in order to free us. . . . When a virtue grows it becomes religious; development transforms an ordinary duty into a supernatural

duty; God appears in the midst of our moral upheavals."[20]

Thus there reappears at the heart of moral problems the question as to the relation of morality and religion. Here French thought assumes a unique position. While not in general separating the one from the other, and while still accustomed to find in religions the justification or culmination of moral precepts, most of the thinkers of whom we have just spoken as positivists or rationalists undertake to sever morality from religion as completely, or even more so, than from metaphysics. They profess what Ferdinand Buisson calls "the secular faith." Even the thinkers who recognize the great social importance of religions and are distrustful of abstract rationalism, as, for example, M. Alfred Loisy, wish to institute a purely human morality.

At the same time this is not the only tendency. There are, as we are coming to see, a number of philosophers who wish to maintain close bonds between morality and religion. But these philosophers, in turn, do not all put the problem in the same way. We may distinguish two fairly demarcated tendencies. On the one hand, there are those who, maintaining an alliance with pragmatism or Bergsonism, conceive transcendence as necessary for immanence. They hold that religious or supernatural truth conditions or envelops human nature which therein alone finds its culmination. It has often been noticed that some of the most eminent disciples of M. Bergson, such as M. Edouard LeRoy and M. J. Wilbois, give the doctrine of *l'Evolution créatrice* a religious crown, and that the master, without appropriating the latter, nevertheless does not disavow it. Another thinker of similar tendencies, a philosopher of "action," M. Maurice Blondel, also comes to conclusions that are distinctly Catholic in character. This is not the

[20] M. J. Wilbois: *Devoir et durée*, Alcan, 1912. *Cf.* a discussion of this book before the *Société francaise de philosophie*, in the *Bulletin* of this society, 1914, No. 1. M. Wilbois has founded an *Ecole d'humanités contemporaines*, designed to train leaders for the direction of affairs.

place to study the specifically philosophical and metaphysical aspects of his view. In the field of ethics, this tendency toward Catholic thought has produced a vigorous moralist who died prematurely, namely, Paul Bureau. His book on *La crise morale des temps nouveaux* published twenty years ago was followed by a great work on *l'Indiscipline des moeurs.*[21] Bureau holds himself more closely to LePlay than to Comte. In common with the rationalists, he criticizes purely sociological theories of morality; but, in distinction from the rationalists, he affirms that there can be no basis for morality apart from a belief in a personal God, the only being "qualified to . . . induce the obedience of an intelligent and free being who would have no reason to submit himself to a force devoid of personality." Paul Bureau was particularly inclined to plumb to the depths of the question of sexual morality which seemed to him of prime importance for the future of society. In this he resembled another thinker whose tendencies are otherwise very different, being thoroughly permeated by the spirit of Bergson, Georges Sorel, the philosopher of syndicalism, who died in 1922. "I am persuaded," writes the author of *Reflexions sur la violence,* "that the world will become more just only in the measure that it becomes more chaste."

Besides these Bergsonian or mystical Catholics, there are others who accuse the former of compromising Catholic dogmas through interpretations that are singularly divergent from doctrinal truth. Modernism has been condemned by Pious X and a number of works by Bergsonian Catholics have been put on the Index. In reaction against this tendency, there are thinkers who advocate a return to the scholastic philosophy. Best known among them is M. Jacques Maritian. As characteristic of this neo-scholasticism in the field of ethics, we would mention at least two

[21] Bloud et Gay, 1923. With reference to Paul Bureau see the first of the *Cahiers de la nouvelle journee,* organ of this tendency of Catholic thought, Bloud et Gay, 1924.

works: a new edition of Mgr. Deploige's book, *Le conflit de la morale et de la sociologie*[22] and a more recent work by M. R. P. Gillet entitled *La morale et les morales,* which is a collection of lectures first given in Buenos-Aires in a course on Catholic culture.[23] These two works furnish a particularly spirited criticism of biological, psychological and sociological ethics. They seek to show that there can be no true ethics without a theological basis. After discussing in particular the distinction made by M. Belot between the rule and the motive, M. R. P. Gillet endeavors to demonstrate that the supreme rule of human conduct is the divine reason. He argues that the supreme motive of moral action is the divine reality, the final goal toward which we tend, alike in our spontaneous activity and in our free volitions, so that in heaven "the motive meets the demands of the rule." This theology, thus, is rational and objective without thereby neglecting the spontaneous impulse of human nature which propels man towards God.

Obviously we here reach a limit where all controversy becomes impossible. For we have to do with an act of faith in the supernatural and with revelation, the keystone of religious faith which the secular thinkers are unwilling to acknowledge. This is not to say, however, that these thinkers are completely satisfied with secular rationalism in the form in which it at first sight seems opposed to religious thought. They attempt to perfect it. M. Jean Devolvé accuses it of being too abstract and of failing to touch the heart. The conditions under which a secular morality may be efficacious, he thinks, involve a utilization of a religious sentiment, but of one that is very broad; precisely because

[22] Third edition, 1923, *Nouvelle librairie nationale.* Mgr. Deploige is President of the *Institut supérieur de philosophie* at the Catholic University of Louvain.

[23] Edition of *La revue des jeunes,* 1925. M. R. P. Gillet, as well as M. Maritain, is Professor in the *Institut catholique de Paris.* Paul Bureau belonged to the same institution.

it is too vague it meets with reproach at the hands of rigorous spirits.[24]

The debate has not remained an affair of philosophers. It is carried on beyond the circle of thinkers; it has entered the turbulent domain of politics where the religious question, because of the role which the Roman church has always played in France, continues in the forefront of attention. The Catholic politicians wage a vigorous campaign against the secular school and against educational neutrality, in which they see only deception. The secular publicists reply not only with dogmatic justifications but also with references to the fruits of the secular school—it furnished the great majority of the heroes of the war.[25] We can here but mention these polemics which are sometimes very sharp; but it is necessary to know of them in order to judge of the commotion which such doctrinal controversies can arouse when they affect vital interests.[26]

We would add, furthermore, that, except in these political struggles, the minds of all the religious faiths and of all the philosophical schools are very happily united in the common pursuit of moral tasks and of theoretical enlightenment. *La ligue francaise d'éducation morale, l'Union de libres penseurs et de libres croyante pour la culture morale,* and *l'Union pour la vérité* (formerly *Union pour l'action morale*) bring together Catholics, Protestants, Jews, rationalists, and thinkers without any religious belief in a spirit of co-operation, confidence and mutual esteem. Within these organizations we find an equal respect for all sincere beliefs; even profound metaphysical differences are

[24] *Rationalisme et tradition,* Alcan, 1911. M. Delvolvé, Professor in the University of Toulouse, has applied his ideas in a small book on ethics designed for children: *La morale à Nelly,* Paris, Nathan.

[25] *Cf.* Albert Bayet: *La morale laique,* Rieder, 1925; also Georges Weill: *Histoire de l'idée laique en France au XIX° siecle,* Alcan, 1925.

[26] One may find an account of the religious question in France from the Catholic point of view by M. Georges Goyau and from the secular point of view by the present author in *L'Europaische revue,* Sept., 1925. *Cf.* also our work, presenting in collaboration a debate, *Sur la paix religieuse,* Paris, Bernard Grasset, 1923.

not repressed. Only the Catholic irreconcilables have a tendency to hold aloof from these philosophical and ethical societies, restricting their efforts to specifically Catholic activities. This irreconcilability varies with the times; at the present moment it is ordered, if not by the sovereign pontiff, at least by the high dignitaries of the church.

IV. Ethics, Law and Politics

Our survey of the main thought currents would be inadequate if it restricted itself to individual morality. The same tendencies, sometimes contradictory, reappear when we turn to the relations of the individual to society, as these are manifest in law and politics.

Here likewise the sociological and the individualistic or rationalistic schools are ranged against each other. But the conflict in this case exhibits unique characteristics. Why ought we to obey the juridical law, the social counterpart of the moral law? To this question M. Duguit, appealing to the authority of August Comte, replies by rejecting every metaphysical element of a subjective sort and falling back solely upon the rule of objective law, the expression of social solidarity.[27] But though invoking sociology, the dean of Bordeaux rejects the hypothesis of a collective consciousness. Along with Tarde, he finds reality only in individuals, governing and governed. If legal relations are to be obeyed, this, according to him, is because they impose themselves as facts without whose acceptance society is impossible. But we clearly see the problem which continually arises from the juridical as well as from the moral point of view—the problem of judgments of value. Why ought we to submit to a fact? Why

[27] The works of M. Duguit are well known to jurists and to sociologists. The master of Bordeaux is giving definite form to his doctrine in a monumental work, *Traité du droit constitutionel*, which began to appear in 1921.

should we obey the "regulation of law" of Duguit any more than the "collective consciousness" of Durkheim? This is a question to which no reply is possible without a kind of idealism which goes beyond a pure sociological and juridical realism.

This is the criticism of M. Duguit raised by the partisans of individual rights who rejuvenate the ancient theory of natural rights by adapting it to the modern outlook. M. Hauriou, the most eminent representative, after Saleikes, of this school, does not deny that there are social rights that are objective and prior to the rights of individuals. His theory of the institution is in this respect one of the masterpieces of present-day juridical sociology. But for M. Hauriou social rights are limited by the imprescriptable rights of the individual moral person; for the moral and religious destiny of the latter transcends society. Objectivity, according to M. Hauriou, is transcendent. The Dean of Toulouse in this respect espouses a sort of Platonic and religious idealism,[28] and we are always carried back to the profound and ultimate roots of doctrines, which are metaphysical beliefs.

With reference to these two extreme theses of realism and idealism in the field of law, paralleling a similar situation in the field of ethics, the orthodox sociological school has believed itself able to effect a synthesis and a reconciliation. In a substantial little book on *Droit, l'idéalisme et l'expérience*,[29] M. Georges Davy, a disciple of Durkheim, seeks to maintain that sociology alone can resolve the contradictions into which the antithetical doctrines fall.[30] He

[28] "Intelligence has been forced to develop by adapting itself to the intelligible realities of the external world, to the *idées-forces*, the messengers of God. . . . In these ideas and in God who is their center, the moral order and the principles of natural law have an objective existence." Summary of *Droit constitutionnel*, 1923, p. 46.

[29] Alcan, 1922. The same author has since published a *Sociologie Politique*, Delagrave, 1924. M. Davy is Dean of the Faculty of Letters in Dijon.

[30] *Revue philosophique*, Nov.-Dec., 1925. With reference to the relations of law and sociology see also an excellent study by M. J. Aillet in *Revue de métaphysique et de morale*, July and Sept., 1923.

holds that assertions of an objective import and the prescriptions of juridical idealism have a common center in the requirements of the collective consciousness. But there always remains, as M. Parodi has retorted, the necessity of explaining "how collective representations can be formed and can acquire a constraining authority . . .; and furthermore, once critical reflection has arisen and an individual can no longer content himself with establishing the existence of collective representations, how and on what rational basis one may justify the latter." Thus, there reappear the questions already put to sociological ethics. We move in a circle.

The reflections of the jurists relate not alone to general theories of law. They attack also the more concrete questions of private and of public law. This is best exemplified by the very animated critique of the idea of national sovereignty and of the very notion of law, the traditional bases of the democratic regime in France. M. Duguit, in particular, has sharply attacked the Roman conception of sovereignty developed by royalty and likewise adopted by the Revolution which transferred it from the king to the people.[31] M. Hauriou, without definitely rejecting it, as has M. Duguit, has shown that it ought to be limited by the individualistic principle in accordance with the viewpoint which we have just described. Along with the idea of sovereignty, that of law is no less energetically proclaimed to be "decadent." On the part of a number of jurists, parliament is no longer considered to be the sole source of legislation. Just as the League of Nations tends to develop an international law superior to the laws of nations, so the powers of parliament tend to be curtailed to a certain extent from within, by economic and social groups which develop "professional laws" and by judicial administration

[31] *Cf.* Duguit: *Les transformations du droit public*, Colin, 1923, and *Le droit social, le droit individuel et la transformation de l'état*, Alcan, 3rd ed., 1922.

which tends in "its juridical constructions" more and more to emancipate itself from the letter of the law. "We no longer have to choose between the rigorist and the liberalist interpretations of the written law; it is in the great book of life that we must read."[32]

We thus come to the threshold of grave political questions which have been throwing the European democracies into confusion, particularly since the war. The crisis of parliamentarianism, the crisis of authority, the crisis of law and the crisis of contract are but varieties of one and the same phenomenon to which we may give the generic name "the crisis of democracy." We cannot here enter upon it but one can at least realize its moral character. Without doubt institutions cannot be eternal. Our parliamentary regime, the outcome of the philosophy of the eighteenth century, ought to be brought into harmony with the new economic, political and moral needs which could not be foreseen by the contemporaries of Locke, Montesquieu and Rousseau, or even by the theorists of the nineteenth century. But if one evokes "life" and its changes uncritically, one succumbs, in political as in moral philosophy, to "mobilism" and to an arbitrariness no less dangerous than an abstract and immutable dogmatism. To diminish the powers of parliament for the aggrandizement of particular groups or of the judiciary will involve national life in serious difficulties and will destroy the very foundations of a democratic regime. M. Gaston Morin is well aware of the danger inasmuch as he demands a reform of the intellectual training of the judge—in his belief the most important of reforms. Though not unmindful of this necessity, let us realize that there is something of even greater importance, namely, the reformation of the intellectual and moral outlook of the legislator and of the citizen. For in

[32] *Cf.* G. Morin: *La decadence de l'autorité de la loi,* in *Revue de métaphysique et de morale,* April-June, 1925; also the discussion of this contention before the *Société francaise de philosophie* in its session of Dec. 27, 1924.

spite of the diversities which exist and of which the magistrate ought to take cognizance, there is need, in the last analysis, of a social bond which is expressed in the law. It is indeed the law which should express whatever there may be that is constant and rational in the consciousness of an epoch.

Thus we have throughout found in ethics, law and politics, the same preoccupations, the same problems, the same tendencies, the same antagonistic solutions. It is at bottom the eternal problem of the one and the many in which one must hold both ends of the chain. The types of minds range themselves according to their leanings, the rationalists favoring the universal rule whereas minds in love with the concrete place the emphasis upon diversity, multiplicity and relativity. We can dispense with neither of the two tendencies, but they are more or less fitting according to the epoch. We live in an age of crisis where particular events are in the focus of attention.[33] It is clear, however, that a normal order will not be re-established if, transcending these diversities, there is not recovered the sentiment for general law which, however, should not have the rigidity characteristic of it in the past. Laborious search for scientific information as complete as possible—pursued, without any other aim than that of truth, by the special paths of all the various disciplines—and the judgment of the upright man, the citizen, the legislator, the judge, on the one hand illumined by this work yet on the other exercising upon it his critical reflection; this, it would seem, is the best means of bringing together the rigor of the scientific spirit and the need of an ideal for conscience. Such is the path that must be taken if one would form or strengthen a common and developing idea of what is rational and just by the collaboration of all who are com-

[33] We have undertaken to develop this in a chapter of our book, *La démocratie et l'après guerre*, Paris, Riviére, 1923, and in a more recent study, *La crse actuelle de l'autorité* in *Grande revue*, Aug., 1925.

petent in matters of ethics. These, it would seem, are the conclusions in which ethical speculation in France today eventuates.

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AESTHETICS

AESTHETICS being a comparatively new science among philosophers, it is not unnatural to find it tinged with other forms of knowledge already explored. Each country, each school of thinkers, marks it with its own particular stamp. Therefore, while Benedetto Croce in Italy and the earlier German aestheticians turn to its metaphysical side, while in Great Britain, we find with Ruskin mainly ethical cares, in France there is a tendency to emphasize the psychological factors in aesthetics. We are chiefly concerned with the representation of the universe as seen through our own individual minds; the latter being, when all is said and done, the only representation which we can be quite sure of, after all.

Among French philosophers we can only trace M. Jules de Gaultier who condescended to clothe aesthetics in the dignified garb of metaphysics.[1]

Unlike, however, Benedetto Croce, who assigns to the aesthetic activity the first momentum historically in human

[1] Jules de Gaultier: *La sensibilité métaphysique*, Editions du Siècle, Paris, 1925.

thinking and the lowest among disinterested activities in the scale of metaphysical values, Jules de Gaultier considers that the aesthetic activity is, on the contrary, the most developed in the evolution of the mind which ascends from the primitive Messianic point of view to the spectacular point of view. The *"sensibilité messianique"* is the one which contemplates the universe with the aim of changing it. All tendency to progress whether it be religious or moral perfection or be it the Bergsonian *"élan vital,"* all search for an external or future end belong to the hope of a Messiah. The *"sensibilité spectaculaire"* contemplates the universe for the sole pleasure of contemplating it.

This theory which was first obscurely expressed in a different way by Nietzsche was not followed out to its conclusion by the German philosopher. Nietzsche forgets the world as representation in his enthusiasm for the world as action, and he falls back into the "Messianic fallacy" by expecting (in precisely the same way as do the moral thinkers whom he criticizes) some immoral Messiah who will perfect the world in beauty.

M. Jules de Gaultier, who is more Nietzschean than Nietzsche (I mean the earlier Nietzsche of the "Origins of Greek Tragedy") and who is logical, works out his thesis in the following manner: The first symptoms of a *"sensibilité spectaculaire"* manifest themselves in biology with the change of sensation into perception. This *"sensibilité spectaculaire"* plays an important, though often unconscious part in human life in the form of curiosity, and attains its perfection in aesthetic activity. Science is far from being disinterested. Quoting Hobbes': "Knowledge is power" and Comte's: "Every science aims at foresight," Jules de Gaultier concludes that the desire to know is a form of the will to power. Science belongs therefore, at first, to the *"sensibilité messianique,"* searching, as it does, the final end outside itself; i. e., an end where, owing to

some universal convergence, all phenomena would merge into an identity, whether this identity be the Eleatic One, the Platonic τὸ ἀγαθόν, or the Hegelian Absolute. Science has failed in this enterprise, because of the resistance of the Real. It appears, then, that modifying its primitive conception of identity, according to which science considered itself as a means of reducing the diverse to unity, it has later used this conception as a means of uniting between themselves the different forms of diversity and of creating out of these forms perceptible objects. After an infinite development, these objects have become no longer degrees towards the attainment of an end, i. e., Bradleyan degrees of reality, but objects the contemplation of which constitutes an end in itself.

Existence, according to M. de Gaultier, is conditioned by knowledge, but knowledge itself is conditioned by relation. Relation must needs exclude all finalism, in which it would be abolished. This argument brings Jules de Gaultier to the position, somewhat paradoxical at first sight, that in the sphere of relation, which is also that of the whole of reality, there is no place for truth. For nothing is true, except when considered from an objective and sole end. Truth presupposes Messianism and belongs to the sphere of philosophical folklore. It must therefore in the sphere of relation give its place to Beauty. Knowledge which is the condition of existence is also its sole justification. It appears, finally, that in the evolution of the different forms of the *"sensibilité messianique"* towards the forms of the *"sensibilité spectaculaire,"* existence frees itself from dependence upon truth and becomes subservient to the hegemony of the beautiful, which alone mirrors the real.

M. Jules de Gaultier is the first philosopher since Kant and after Croce to give to aesthetics its metaphysical import, but unlike the two former thinkers, he allots to this

science the chief place, and his conclusion reduces practically the whole of the theory of knowledge to an aesthetic activity.

Among those—and they are very few in France—who have approached aesthetics from a moral point of view, we must mention M. Lalo.[2] After a very exhaustive and critical survey of the different solutions of the problem, and an impartial statement of its historical side, M. Lalo points out the impossibility of adopting an absolute scale of values. He admits, however, a differentiation between the "normal value" (i. e., the moral principles of the man-in-the-street) and the "ideal value" or the morality which it is not always desirable to realize. In all questions of value, it is the "normal value" which remains fundamental and is the only one capable of being objectified. The ideal value is its hypothetical transposition and can be more or less verified by time, space and humanity. M. Lalo argues further that that which is morally bad in itself may be morally good on the whole, and he enforces his attitude by Aristotle's cathartic theory of art. An immoral work of art may be finally moral by the very fact of its immorality, i. e., of the purgation of undesirable passions; which, of course, lands the whole problem in a kind of universal relativism.

It is difficult, says M. Lalo, to conciliate the beautiful and the good in one indivisible unity; this would be too simple and too abstract for life. It is also difficult to maintain them in a badly regulated duality, which is anarchical. Their harmony must be solidarity and organization. He therefore seeks the answer to the problem in the double notion of synthesis and relativity. Wherever there is synthesis, the whole acquires a value which its elements do not possess. If the whole reacts on its parts or vice versa —as would a cell in an organism—these two values clash,

[2] Lalo: *L'art et la morale*, Alcan, Paris, 1922.

though the one cannot exist without the other, and though they form a whole. The only sin in spirit, in M. Lalo's eyes, is that of being incomplete.

Though M. Lalo insists, so it seems to us, too much on the social side of art,[3] he remains well in the vein of French thought. Even in *l'Art et la Morale*, and especially more so in his other works on aesthetics,[4] he approaches aesthetic questions chiefly from a psychologist's point of view. He discerns five main classes among the functions of art in life:

Firstly, an escape from practical reality (Type Flaubert).

Secondly, a cathartic activity of immunization—by liberation—against the tension of external and tyrannical aspiration (Type Goethe).

Thirdly, a purely technical activity whch leads to the theory of "art for art's sake" (Type Goncourt, Théophile Gautier, Oscar Wilde).

Fourthly, an activity of embellishment of a vulgar reality and of the author's own vulgarity (Type Jean-Jacques Rousseau).

Fifthly, a more humble activity of reinforcement of simple reality (Type Stendhal, Van Dyck, Mozart).

This classification, though very ingenious, appears to us, nevertheless, somewhat arbitrary and often overlapping. For instance, there is much more in Oscar Wilde than a purely technical activity, and Van Dyck seems to have been far more refined in his art than in his private mode of living.

M. Lalo's two treatises on aesthetics, already mentioned, contain an exhaustive and impartial survey of the different problems for a beginner. Of the same type but of a more ambitious character is the treatise by M. Alain.[5]

[3] Lalo: *L'art et la vie sociale.*
[4] *Notions d'esthétique*, Alcan, Paris, 1925; *Esthétique*, Vuibert, Paris, 1925.
[5] *Système des Beaux-Arts*, Nouvelle Revue Francaise, 1920.

Though it imparts nothing entirely new, we find therein a systematized review of technical theories of art. The history of French aesthetics has been set forth in a satisfactory way by M. Mustoxidi.[6]

The psychological field is far from being exhausted. Among the most interesting publications is, no doubt, the chapter by M. H. Delacroix on *Le Sentiment Esthétique*.[7] He examines the doctrine that play is the origin of all art. Though he does not deny the analogy between these two activities, he argues that the new factor which the aesthetic activity adds to the faculty of play, it might as well add to a more serious faculty. He defines the work of art as a profound psychological moment in life. At the beginning of every aesthetic sentiment there is a sensorial element, but the task of intellectualizing the imagination and the dream is none the less important. Not unlike the former thinkers whose theories we have stated, M. Delacroix holds that the aesthetic activity is that faculty which discovers new relations between us and the sensations and among the different sensations, as independent of the particular quality of the sensations themselves. There is therefore at the basis of all the arts an intellectual activity which is the same as that which leads to the constitution of language.

The aesthetic sentiments, though individual, bear, according to M. Delacroix, a character of universality. In the pure emotions the artist detects the structure and the plan of evolution. These sentiments are the most delicate and the most profound reaction of the soul towards the universe. He claims, therefore, that all human interests are represented in art. But he thinks that the same aim is achieved by the contemplation of nature as by a work of art.

Such is also the opinion of M. A. Dauzat.[8] After hav-

[6] *Histoire de l'Esthétique francaise* (1700-1900), Champion, 1920.
[7] In Georges Dumas's, *Traité de Psychologie*, Alcan, Paris, 1924.
[8] *Le sentiment de la nature et son expression esthétique*, Alcan, Paris, 1914.

ing analyzed the impressions which the contemplation of nature produces in certain individuals, he proceeds to examine the influence of surroundings on works of art. He concludes, however, with M. Paulhan,[9] that it is mostly when love of nature has been denied its free outlet, that it reveals itself, as it is always a repressed tendency which creates the artistic attitude.

This brings us to a very modern part of the literature on the subject. It is not surprising to find that the Freudian doctrine has influenced in many ways contemporary aesthetic theories in France as much as—or perhaps a little less than—in other countries. Even M. Lalo seems to tend in this direction in his more recent books. We have not found, however, in this Freudian aspect of the aesthetic activity anything new which was not already stated in the old Aristotelian theory of the purgation of passions.

Doctor Hesnard[10] argues that a work arises in the mind of the artist through an unconscious process which can be compared with that of the dream. The artist puts in his work many tendencies of which he finds an ideal realization or liberation. He searches for the sublime means of expressing all his aspirations. Psychoanalysis will discover in his work all the intimate sentiments of the author with the whole of his affective history and the whole of his personal life, including his reminiscences of childhood and youth.

Charles Baudouin[11] gives us many examples to illustrate the Freudian doctrine of art. Every state which engrosses the mind tends in one way or another to secure external expression, for it is a concentrated energy which wishes to diffuse itself. He goes on, showing how, for Victor Hugo, for instance, hallucination by compromise, which in his case is the source of symbolical poetry, is the normal

[9] *L'Esthétique du paysage*, 1912.
[10] *L'Inconscient.*
[11] *Suggestion et Auto-Suggestion.*

method of discharge; and how Goethe by writing Werther freed himself from a suicidal impulse.

On the pathological side of the subject we must mention Doctor Vinchon's *L'art et la folie* (Stock, Paris, 1924), and an earlier book by Marcel Réja, *L'art chez les fous* (Mercure de France, 1914). Though the examples they give of art (literature, painting, music) as created by inmates of an asylum are interesting in themselves, they throw but little light on the main problems. Marcel Réja, basing himself on the examples in his book, concludes that art seems to be the manifestation of the obscure consciousness of the individual. It expresses, with the satisfaction which every activity finds in its own expression, the actual state of mental acquisition. The work of art is a kind of concrete scheme in which the individual takes pleasure in synthesizing acquired notions without having recourse to the logical and rational process of abstraction.

If anything, the poems and pictures created by lunatics and systematically collected by Marcel Réja would go to prove the theory of the French aestheticians, as against Benedetto Croce, that a real work of art is constituted of intellectual elements as well as sensual.

Our review would be incomplete if we did not say a few words of the artists who have written about their own activities Their theories may not be philosophical, but as a confession they throw some light on the subject. They are important in a country like France, where new literary schools are created every year, new manifestos written, new poetical programmes proclaimed, and where artistic life is bubbling over with new fashions.

Among the earlier writers, a curious theory of "eurythmic harmonization" of the individual with conflicting causes, has been put forward by Rémy de Gourmont.[12] Though it remains in the tradition of the Aristotelian

[12] *Le problème du style*, Mercure de France; *Esthétique de la langue française*, Mercure de France.

καθαρσις and the Freudian "libido," Rémy de Gourmont's theory is more subtle, as it is based on a hedonic search for "attunement" with the surroundings and the universe and the desire for immortality, which is reminiscent of the Platonic doctrine in the Banquet. This theory has been followed to its logical conclusion by the author's brother, Jean de Gourmont, who tells us a very illuminating anecdote on the subject: "I once suggested to Rémy," he writes, "the possibility of a fire in his library. He answered that he would rather die than see his notes and manuscripts disappear. Transposition of the instinct of generation, perhaps. But in this there is especially the human conception of the idea of eternity. This realization of oneself in a work of art which will last longer than one's life, is, in fact, the negation of religious faith and its transposition into an individual eternity."[13]

The desire for immortality as a factor in creative work is also emphasized in M. Paul Valéry's *Eupalinos,* an imitation of a Platonic dialogue, which takes place in the underworld between the ghost of Socrates and that of Phaedrus.[14] "Nothing beautiful," says M. Paul Valéry through Socrates' mouth, "can be separate from life, and life is that which dies." It is most ironical and somewhat pathetic to hear two immaterial ghosts discussing the necessity for material bodies and forms as these alone can radiate and perceive beauty. For there exist no details in the execution of a work. The reality of a discourse, according to Paul Valéry, lies more in that which appears accidental to the profane, i. e., in the coloring and in the tone of a voice, in the way things are expressed rather than in the things expressed. Here again we see that the sphere of relations is of paramount importance for aesthetic perceptions.

The crux, however, of M. Valéry's theory is in its aesthe-

[13] Jean de Gourmont: *Souvenirs sur Rémy,* Champion, Paris, 1924.
[14] Paul Valéry: *Eupalinos ou l'Architecte,* Nouvelle Revue Francaise, Paris, 1923.

tic formulation, too often overlooked by those who approach the question as metaphysicians and psychologists. Paul Valéry insists that art is mainly choice—a fact often forgotten—and that as such it is tyrannical. Real beauty, he says, is as rare as is, among men, the man capable of making an effort against himself, i. e., to chose a definite self and to impose it upon all his other selves. It is urgent that *that which shall be* should satisfy, with all the force of its novelty, the reasonable requirements of *that which was*.

After a somewhat arbitrary distinction between natural and artificial objects—arbitrary, because M. Valéry, basing it as he does on two different kinds of order, forgets that order is altogether an anthropomorphic conception—Paul Valery's theory of choice (among the infinite subject-matters for aesthetic creation) culminates in the following argument:

If the universe is the effect of an act, and the act itself the effect of a Being and of a need, of a thought, of a science and of a power of that Being, it is by an act alone that one can join again the great aim and propose to oneself the imitation of him who has made all things. This is the most natural way of putting oneself in the very place of God. And out of all acts the most complete is that of constructing. A work demands love, meditation, obedience to one's most beautiful thought, invention of laws by one's soul. It arises from the most intimate part of one's life, and yet it is not identical with oneself. One would be to that work—if it could but think—a God. Just as God created out of chaos, the artist creates out of the chaotic elements which surround him, and he starts where God has stopped.

Thus, by putting aesthetics at the highest summit of spiritual evolution, Paul Valéry comes, though by different means, in a totally different manner, and on an alto-

gether different plan, to a conclusion which has several points of analogy with that of Jules de Gaultier.

Among the ultra-modern manifestos on art, we must quote Marinetti's cry of battle: "An automobile in full speed is more beautiful than the Victory of Samothrace or the Venus de Milo." Exaggerated as it may seem, it nevertheless marks a new aesthetic interest. Until now, all civilizations have centered around two main ideas: the infinite, in the East, based perhaps on the contemplation of the desert, which brought forth mystical ecstasy, monotheistic religions, pantheistic thinking and a general disorder in creative work, where, as can be seen in Hindu temples, the mass, reminiscent of infinity, is overadorned and overdressed with rich details; the finite, in the West, based on the contemplation of trees which suggest individuality, human gods and beautiful forms. But whether oriental or occidental, the aesthetic ideal has always been an ideal of repose, of immobility.

"Est-elle en marbre ou non, la Vénus de Milo?
Je hais le mouvement qui déplace les lignes."

Such was the credo of beauty of a former French poet. Now the futurists have introduced for the first time the idea of movement as a subject-matter for aesthetic contemplation, and this opens up new vistas of possibilities.

Following closely in the steps of the futurists are the surrealists, chiefly represented by Philippe Soupault, Joseph Delteil and Robert Desnos. Their ideals also are speed and shortness, with special stress laid upon impulsive expression.

No masterpiece, nothing of great artistic value has so far been created in any of these modern schools.[15] This, of course, is not a fair criticism, for (as is witnessed in the

[15] We must except M. Marinetti's works. However, his better writings like *Le Roi Bombance, Poupées électriques,* etc., have not been written according to futurist canons.

history of art) hardly any masterpiece has ever been achieved by the same minds who have invented a new aesthetic language. The sonata form was known a century before Beethoven and Mozart brought this musical language to perfection. It seems as if the whole creative power is exhausted by the invention.

However, for better or for worse, the futurists and the surrealists are children of that century of speed where conditions of life leave little time for contemplation. The value of their aesthetic ideal can be determined alone by time.

MARYSE CHOISY.

HISTORY OF PHILOSOPHY[1]

I. Methods

THE generation of professors who held the highest positions in French universities in 1914 had succeeded in bringing about the long-expected conciliation between the historical mind and the philosphical mind. Already such men as Renouvier and Boutroux had proved that an aptitude for original thinking, instead of excluding, rather evoked, an interest in what other philosophers had thought. Bergson entered with complete sympathy into the philosophical attitudes of Plotinus and Berkeley. Hamelin combined a most robust originality with an exceptionally keen understanding of Aristotle, as well as of the great classical systems; Durkheim, different as was his mind, agreed with him in the belief that a thinker must speculate not apart from, or against, but in the trend of those who came before. Both of these thinkers, like A. Comte, were of the opinion that "one can destroy only to replace." L. Lévy-Bruhl had given an example of the *analytical* intelligence through which a system is taken to pieces in such a way as to show the origin of its various elements (*La philosophie d'A. Comte*). V. Delbos had offered well-known examples of a *synthetical* effort, following the development of a system step by step, in the case both of a single, powerful thinker (*La philosophie pratique de Kant*) and of a succession of thinkers (*Le problème moral dans la philosophie*

[1] Translated from the French by Germaine and Louis Landré.

de Spinoza et dans l'histoire du Spinozisme). Lévy-Bruhl and Delbos remain the unchallenged masters in the teaching of the history of philosophy in France.

The war brought heavy losses within the ranks of the younger generation. It delayed the publication of many studies. Through a decision of the Minister of Public Instruction, war veterans were allowed to present one thesis instead of two for the Doctor's degree; hence a decrease in production. But it seems impossible to say that contemporary events have had any influence on the methods followed in the history of philosophy; on the other hand, we shall find that they have left their mark upon philosophical inquiry.

The adepts of analytical formulae, such for instance as that of R. Berthelot, are many; none, however, has been able to handle this method with the dexterity and the lucidity of Lévy-Bruhl. The synthetic formula has inspired several studies of very great value. Those of L. Brunschvicg on Spinoza and Pascal, that of L. Robin on *La pensée grecque* (Renaissance du Livre, 1923), that of X. Léon on Fichte (*Fichte et son temps,* vol. 2, 1924, Colin), the notes added by P. Tisserand to the works of Maine de Biran (Alcan) will mark an age. The rich monographs of R. Lenoir belong to the same group of studies (*Condillac,* Alcan, 1924; in *Revue Philosophique*: *Cl. Bernard,* Jan., 1919; *M. de Biran,* Nov., 1924; *Saint-Simon,* Sept., 1925).

Neo-criticism is still progressing. The Hellenism of L. Robin follows and completes that of Hamelin. The analyst of the *Sciences Sociales dans l'Encyclopédie* (Alcan), R. Hubert, believes that he can justify, by the exigencies of reason in its evolution, the description of the phases of reason set forth by sociological empiricism (*Le sens du réel,* Alcan, 1925). A similar point of view throughout pervades the *Evolution de l'humanité* of Henri Berr, who, as the editor of the *Revue de Synthèse Historique,* has proved

to be the most philosophical of historians. This collection of a hundred volumes is not merely a series of studies of all the civilizations of the world; it aims to follow step by step the formation of mind.

E. Durkheim (died in 1917) with his friends and disciples—was he not the only French contemporary thinker who founded a school?—inaugurated new methods even in the history of philosophy. He himself had produced commentaries on Aristotle, on Hobbes, on Comte; he had studied Montesquieu, Rousseau, Condorcet; after beginning a *Histoire du socialisme,* he traced the history of the family and the history of pedagogy. All of his far-reaching works are too little known outside of France. The sociological method, in its desire to build on an historical basis the science of social facts, has given stimulus to numerous works on the history of philosophy; it suggested that the progressive formation of our categories should be sought in the evolution of the various societies. Lévy-Bruhl at once applied this method to an analysis of the primitive mind, mystic and pre-logical, incommensurable with the positive mind (*Les fonctions mentales dans les sociétés inférieures,* 1910; *La mentalité primitive,* Alcan, 1922). The science of man, about which the eighteenth century dreamed prematurely, henceforth requires a comparative knowledge of mentalities. More strictly faithful to Durkheim's inspiration, M. Mauss upholds the principles of *l'Année sociologique,* which reappeared in 1925 (Paris, Alcan).

Studies of a very diverse character have been published under the influence of the sociological school. The leader of the school has studied penal evolution, suicide, etc. G. Davy starts on the history of law (*La foi jurée; Le droit, l'idealisme et l'expérience,* Alcan, 1922; *Des clans aux empires,* in collaboration with A. Moret, Renaissance du Livre). M. David, killed in action in 1914, had introduced

this research by investigating Greek thought as a whole and not merely that of philosophers; he is followed by L. Gernet, who gives the archaic value of such words as ὕβρις and τιμή. M. Granet analyzes in a similar way the rural institutions of primitive China, then the feudal period of pre-imperial China (*Fetes et chansons anciennes de la Chine, Leroux,* 1919; *La polygamie sororale,* ibid., 1920; *Danses et légendes de la Chine ancienne,* Alcan, 1926.) R. Lenoir, whose monographs on French thinkers we have mentioned, analyzes the potlatch (*Revue Philosophique,* March, 1924). He devotes to the history of technique the same attention given to it by Espinas and Sorel.

Perhaps we may be permitted to supplement this list of references with a mention of our own work. We are concerned with the philosophical vocabulary of both the Chinese and the Sanskrit languages. We apply to the comparative history of ideas in the three synchronic and parallel civilizations—Occident, India, China—the method that has proved so fruitful in sociology. A positive science of the mind, in our opinion, is possible only through the comparison of the various human mentalities. For if problems and solutions have meaning only for the society that conceived them, the parallels between convictions or, if one prefers, prejudices inherent in each intellectual tradition, is the main field of philosophical concern. (P. Masson-Oursel, *La philosophie comparée,* Alcan, 1923; *Comparative Philosophy,* London, Kegan Paul, 1926).

II. The Subjects

Recent political events have, unfortunately, not strengthened in France the desire to understand the German soul. Most of the works published by students of German civilization after 1914, were begun or may have been begun

before the war. Such is the case with *Hebbel,* by L. Brun; *La fortune intellectuelle de Herder en France,* by H. Tronchon; and *Fr. Th. Vischer,* by O. Hesnard. The penetrating studies of H. Delacroix on mysticism have aroused, so far as the tendency in Germany is concerned, only the work of Ed. Vansteenberghe on *Nicolas y Cusa* (Lille, Lefebvre-Ducrocq, 1920) and *Autour de la Docte ignorance* (Münster, Aschendorff, 1920). More useful than ever as an intellectual link is the zeal shown by such men as Benrubi and Groethuysen to reveal modern German thought to France, and, conversely, the thought of France to Germany. German philosophy has been reviewed by E. Bréhier in a short *Histoire* which is valuable for its succinctness and precision (Payot, 1921). The University of Strasbourg henceforth has a task of considerable importance, that of supplying information on Central Europe to the French mind. Its School of Protestant Theology has had the merit of publishing H. Strohl's book on *l'Evolution religieuse de Luther jusqu'en* 1515, *puis jusqu'en* 1520; and the *Cahiers* of the *Revue d'histoire et de philosophie religieuses* will be useful in reminding the French public of the solidarity between dogmas or cults and philosophical notions.

Research is attracted more than before 1919 by the Slavonic mentality. The works of Léger have been fruitful. The Parisian Institute of Slavonic Studies, as well as French foundations established in Czecho-Slovakia and Poland are at once the outcome and the consecraton of interesting intellectual relations. On the other hand, the Revolution has isolated Russia. During this time Tolstoi's prestige decreased in France, where literary people felt a growing admiration for Dostoievsky. The powerful criticism of Chestov has produced a deep impression among us: we have been unable to forget his masterful portrayal of the personality of our Pascal (*La nuit de Gethsemani,*

Grasset, 1923). Suarès has been leading us toward a better understanding of Chestov. May the latter infuse in us his supreme sense of the vitality whch abstract problems seem to acquire in ardent personalities!

Before the war, the history of Anglo-Saxon philosophy subsequent to Mill and Spencer was unknown not only to the general public, but also to the philosophers. Boutroux met some eminent Englishmen at congresses; and Bergson was fully conscious of his affinities with W. James, as was the latter of his debt to Renouvier. But the knowledge of English and American thought remained elementary. Three "agrégés" have modified this state of affairs. G. Marcel revealed Josiah Royce to the public (*Revue de métaphysique et de morale,* 1918). J. Wahl analyzed the *Philosophies pluralistes d'Angleterre et d'Amérique* (Alcan, 1920) with a penetration of mind that was all the keener since he started from a very solid knowledge of the whole history of philosophy, especially of German thought. Em. Leroux examined the *Pragmatisme Américain et anglais* (*Ibid.,* 1923), with the aim of reaching speculative conclusions. In him the historian has not killed the philosopher, and his understanding of systems has not suffered, but has considerably gained, from his attitude. Beside these essential works, we should mention the *Mystiques et réalistes anglo-saxons* (Colin, 1918) and *Autour d'Emerson* (Bossard, 1924) by R. Michaud. The collaboration of Legouis and Cazamian gave us a masterful *Histoire de la litérature anglaise* in which the history of thought is not neglected. We cannot omit two interesting theses by D. Saurat: *La pensée de Milton* and *Blake et Milton* (Bordeaux, Université, 1920).

The field of the philosophical systems explored by modern investigation has widened considerably. The Middle Ages have ceased to be ignored by the State schools. Thanks to the fruitful activity of Et. Gilson, M. de Wulf

is no more the only French-speaking philosopher to whom scholastic argumentations are not unknown; the understanding of Saint Thomas Aquinus is no more the exclusive privilege of the Catholic institutes. France cannot yet compare her series of monographs, collections of texts or critical studies with the productions of the school of Baeumker. Yet a general plan is being formulated both for exploring the Middle Ages and for studying what has survived to the present day of the thought of those times (Gilson: *Le Thomisme,* Strasbourg, 1920; *Etudes de philosophie médiévale,* ibid., 1921; *Saint Bonaventure,* 1922; *La philosophie au Moyen Age, Payot,* 1922). The works of Durantel on Saint Thomas (Alcan, 1918) and of Landry on Duns Scotus (Alcan), and the theses of Carton on Roger Bacon (*La synthèse doctrinale de Roger Bacon; l'Expérience mystique et l'expérience physique de Roger Bacon,* Vrin, 1924) bear the stamp of a new discipline. A criticism of scholastic rationalism, resting on a considerable number of documents, has been attempted along very independent lines by L. Rougier (*La scolastique et le Thomisme,* Gauthier-Villars, 1925). The philosophical interest of theological problems becomes obvious at last, even to lay thought: the influence of Delacroix is felt. *La doctrine de la grace chez Arnauld* and the *Saint-Cyran* by J. Laporte (Presses Universitaires de France, 1922) have been received with favor; as to the *Saint Jean de la Croix* by J. Baruzi (Alcan, 1924), it is a worthy step in the study of mystical experience.[2]

At the same time, patristic thought has become a part of the history of philosophy. While de Faye continues his work on Origen, G. Bardy studies the *De Principiis* of this author (Lille, Desclée, 1923) and examines *Paul de Samo-*

[2] A collection of Greek and Latin philosophers of the Middle Ages, as well as a Latin collection of the Middle Ages and Renaissance are planned by the *Association Güllaume Budé,* under the auspices of which there have just been published translations of Plotinus, by Em. Bréhier, and of Lucritius, by Ernout and Robin, (Société Les Belles Lettres).

sate (Bruges, Ste. Catherine, 1923). The outskirts of Christian dogmatism are explored: Em. Bréhier undertakes a translation of the *Ennéades* (Belles-Lettres, 1924) and R. Arnou gathers material on the *Désir de Dieu chez Plotin* (Alcan, 1921). L. Francois gives us the real personality of *Dion Chrysostome, Cynique et Stoicien* (Delagrave, 1921); F. Préchac devotes himself to the study of the *De Clementia* (Belles-Lettres, 1921); B. Latzarus treats the *Idées religieuses de Plutarque* (Leroux, 1920). L. Rougier has studied *Celse,* or *Le conflict de la civilization antique et du christianisme primitif* (Siècle, 1925). C. Toussaint determines the relations between *l'Hellénisme et l'aportre Paul* (H. Jouve, 1921). Works of even greater originality appear: *Yahya ben Adi,* an Arabic Christian philosopher of the tenth century, by A. Périer (Gabalda et Geuthner, 1920); the *de Deo* by Eznik de Kolb (Imprimerie Nationale, 1921), translated from the Armenian, and the *Commentaire de Diodore de Tarse sur les Psaumes* (Firmin-Didot, 1924) by L. Mariès. A masterful work, in its line, has been produced: the double story of P. Alfaric, treating both Manicheism and Saint Augustine, its enemy. For the first time a thorough study in the field of Orientalism gives a new interpretation of one of the main thinkers of the Occident; for the first time a religious movement which upset the ancient world from Spain to China is considered with perfect objectivity through an analysis of its sources (*l'Evolution intellectuelle de Saint Augustin* (Nourry, 1918); *Les écritures manichéennes* (Ibid., 1918).[3]

Finally, Oriental thought is definitely brought within the scope of our history of philosophy. Even before the war, one felt, and now no one can doubt, that our civiliza-

[3] The Renaissance, which is a thoroughly European fact, has inspired some research work. Let us mention: *Préréforme et humanisme à Paris pendant les premières guerres d'Italie,* 1494-1517 (Champion, 1916) by A. Renadel; *La pensée italienne au XVI. siècle et le courant libertin* (Champion, 1917) and a small thesis on Bruno (*ibid.*) by Charbonnel; *Un humaniste italianisant, Papire*

tion is Eurasiatic and not strictly Mediterranean. Orient and Occident are two terms of a very relative value, according to the periods to which they refer; both can be understood only within the same total order, which, through centers distinct but not unconnected, has been spreading for three hundred years from the extreme Orient to the extreme Occident. The Semitic population, whether in a group as in Babylon, or scattered as after the Dispersion of Israel, or victorious as in Islam, has always been a connecting link between the various parts of this continent. In this respect, the text-books published by R. Kreglinger (Lamertin, Brussels) on the history of the various religions, Ed. Montet's pamphlet on the *Histoire de la Bible* (Payot, 1924), the *Koran* of Dr. J. C. Mardrus (Fasquelle, 1925) and the *Penseurs de l'Islam* by Carra de Vaux (Geuthner) are contributions to the history of philosophy. The *Introduction à l'étude de la philosophie musulmane* (Leroux, 1923) by L. Gauthier may be of some use, but how much more the works of Massignon! His *Passion d'al Halladj,* and even more his *Lexique technique de la mystique musulmane* (Geuthner, 1922) are master works.

Had it only its "hundred philosophies" to offer us, China would be a mine of original and varied speculations. But it possesses even more than that. This is attested by the works of Father L. Wieger. These are lacking in critical sense, but not in material (*Histoire des croyances religieuses et des opinions philosophiques en Chine,* Hien-hien, 1917 and Challamel, Paris; *Les pères du système taoiste; Le canon taoiste,* ibid.) The brief but very original *Religion des Chinois,* by M. Granet (Gauthier-Villars, 1922) shows

Masson, 1564-1611 (*ibid.,* 1924) by P. Rouzy; *Jean Bodin,* by R. Chauviré (*ibid.* and La Fleche, 1914); *Erasme* by J. B. Pineau (Presses Universitaires de France, 1923); *La Renaissance du stoicisme au XVI. siècle* (Champion, 1914) by Léontine Zanta. P. Villey has pursued his researches on Montaigne (*Revue Philosophique,* May, 1926). Campanella has found a worthy historian in L. Blanchet (Alcan, 1920), and G. Bruno, in the young Egyptian philosopher, Namer.

on what basis this thought was established. We should not forget that the originator of contemporary Sinology, Ed. Chavannes, had received a philosophical training and that, allured by the ideas of China, he devoted himself to the study of it. He inspired his successors with an ardent curiosity. As to India, it offers to the historian of philosophy a more abundant and richer field than any other civilization. The very few fruitful researches of Sylvain Lévi and of his collaborators and disciples, after those of Burnouf, Bergaigne and that other historian of philosophy, Auguste Barth, have considerably advanced the true history of philosophy, the comparative study of human thought. Students of Sanskrit or Tibetan, Sinologues, discoverers of languages spoken or written in Central Asia centuries ago, are little by little revealing this Buddhist canon in which so much philosophy is embodied. The *Journal Asiatique*, the *Bulletin de l'Ecole Francaise d'Extreme-Orient*, the *T'oung pao*, contain about as much history of philosophy as the *Revue de Métaphysique et de Morale*. The Buddhist studies of the Belgian, Louis de la Vallée-Poussin almost all deal with the history of thought. The *Histoire des idées théosophiques dans l'Inde*, by P. Oltramare, of Geneva (Musée Guimet, Paris) is the work of a philosopher. The *Sutra des causes et des effets* (Geuthner), translated by P. Pelliot, is of no less interest to critical reflection than David Hume's *Treatise*. The study by the French Swiss, P. Demiéville, of the Chinese versions of the *Milindapanha* (*Bulletin* mentioned above, Jan., 1924) adds to the history of logic as well as to that of dogmas. Supplementing the monographs or partial histories is the synthetic effort of P. Masson-Oursel in his *Esquisse d'une histoire de la philosophie indienne* (Geuthner, 1923).

Credit for this enrichment of the history of philosophy should be given mostly to our master, Professor Lévy-Bruhl, who encouraged the co-operation between philo-

sophical criticism and such disciplines as linguistics (as represented by Meillet and Vendryès) and ethnography (as represented by Rivet and Mauss). The *Revue Philosophique*, since passing from the direction of Ribot to that of Lévy-Bruhl, reflects this broadening of philosophical curiosity.

III. The Results

The new spirit discernible in philosophical historiography in France may be summed up as follows: an indefinite extension of the field of study and, as a consequence, a renewing of the subjects.

Europeocentrism and "europeomorphism" no longer have meaning; we may not *a fortiori* limit ourselves to about ten systems, Greek, English, French, German, as the amplitude of human thought. It would be a mistake to suppose that our notions have simply been increased. A knowledge of the intermediary phases hitherto neglected—end of Antiquity, Middle Ages, Renaissance, Contemporary Period—and a better documentation on the peoples interposed between the principal civilizations will serve not only to decrease our ignorance but also to throw a new light on the very doctrines which we believe we knew best. Thus Aristotle's logic seems transformed when we compare it with that of Dharmakirti, which does not deal with concepts. Our judgment on Scholasticism is modified when we learn that it is not only a European fact but an event of greater generality. The discoveries of Miguel Asin Palacios, a student of Arabic, oblige us to modify our exegesis of the Divine Comedy and our interpretation of Pascal's wager. In no field can a part be understood, that is, assigned its exact place in history, except by reference to its relations to a greater whole. It is impossible to offer a satisfactory interpretation of any system except in connection with the comparative history of human thought.

In so far as these leading ideas are prevalent, synthetic views are useful, provided one realizes their provisional character. The general *History of philosophy,* soon to be published by Em. Bréhier (Alcan) will meet a need. Important discoveries are to be expected, if research ceases to be left to the chaotic initiatives of individuals. A general organization of intellectual work that may be of great value to the history of philosophy is being prepared at the *Centre de Synthèse,* organized in the latter part of 1925 by Henri Berr, 2 rue Montpensier, Palais Royal, Paris. The recent commemorations of Pascal, Biran, Kant, Saint-Simon and Renan have not been fruitless, since they have brought out the different ways in which successive generations have understood systems too often considered as soaring in eternity. Every human thought has been lived; it becomes accessible to those alone who can again give it life. If such men as Gustave Cohen, Gilson, Koyré and Blanchet modify our understanding of Cartesianism,[4] it is by replacing it in its environment, in connection with its antecedents. And it is not otherwise that Dupréel tries to formulate a new interpretation of the Socratic philosophy (*La légende socratique et les sources de Platon,* Sand, Brussels, 1922). It is also in life, but in life as it is revealed by clinical experimentation and psychiatric practice, that F. Morel, inspired by Freudianism, illuminatingly places the obscure and subtle dogmatism of the pseudo-Denys by psycho-analytical methods (*l'Introversion mystique,* Geneva, 1918). To derive from philosophical systems all the teaching they contain it is not enough to re-

[4] G. Cohen: *Les écrivains francais en Hollande dans la première moitié du XVII. siècle,* Champion, 1920; Et. Gilson: *La liberté chez Descartes et la théologie; Index scolastico-cartésien,* Alcan, 1913; A. Koyré: *Essai sur l'idée de Dieu et les preuves de son existence chez Descartes,* Leroux, 1922; L. Blanchet: *Les antécédents historique du "Je pense, donc je suis,"* Alcan, 1920. The *Histoire de la philosophie, by R. Lote,* following upon the *Histoire des sciences biologiques,* by M. Caullery, in the *Histoire des sciences en France,* allows the public at large to place the principal French thinkers in the field of general history. (*Histoire de la nation francaise,* by G. Hanotaux, vol. 15, Plon-Nourrit, 1924.)

vive them; one must be able to live them, to use them for judging other types. Thus pursued, the history of philosophy achieves its purpose, which is to advance the criticism of thought.

PARIS, FRANCE.

PAUL MASSON-OURSEL.

PSYCHOLOGY[1]

IN the following pages, we intend not so much to make a complete review of the results achieved by psychology in French-speaking countries since 1914, as to indicate the principal currents of psychological thought which characterize the works published during that period.

As we are not concerned here with questions connected with pedagogy (child psychology or vocational guidance) nor with religious or esthetic psychology, we may group our remarks under four principal heads: general psychology, abnormal psychology, physiological and animal psychology, and problems closely connected with psychology.

General Psychology

Just as we can reach biology through anatomy, physiology or embryology, so we can also distinguish three main currents, at present, in general psychology: the *structural*, the *functional* and the *genetic* tendencies. If it is interesting to make such distinctions it is because one definitely feels that the psychologists who adopt one or the other of these orientations have very different views as to what constitutes explanation in psychology. It is certain that the psychology written in French during these last years has remained faithful to the general ideal of contemporary psychology, i. e., the ideal of being a positive, autonomous

[1] Translated from the French by Marthe Sturm, Smith College, Northampton, Mass.

science, distinct especially from general philosophy. In this respect Th. Ribot's influence remains a living one. But it seems that the meaning of this rally cry has notably changed during these last years and that psychological methods have become more flexible. For Ribot, probably, the independence of psychology from metaphysics meant the progressive reduction of psychological to physiological phenomena. At least, the well-known principle of psycho-physical parallelism would not have aroused so many discussions if it had not been considered as a weapon in the hands of physiologists. During the last few years, on the other hand, there has been a stronger and stronger tendency towards the complete autonomy of psychology, and the theory of parallelism now seems to be interpreted by every one in the manner some time ago set forth by Flournoy, whose work on this subject has just been republished.[2] Flournoy declared psycho-physical parallelism an easy way to avoid discussion about mind and body and to permit the collaboration of physiologists and psychologists without confusion of their respective fields. Indeed, the principle of parallelism offers to both groups of scientists guaranties and freedom of action: if it establishes a parallelism, it also denies any identification or causal connexion as regards the two series, psychical and physiological. But even though the contemporary psychologists writing in French agree in considering psychology a positive science, they, however, by no means accept the same underlying metaphysics. In spite of their implicit systems of philosophy, which are further divergent than ever, they agree to use, as the only possible method of psychology, observation and experimentation, to the exclusion of any kind of ontology. From this point of view Dumas' conclusion, in his *Traité*

[2] Th. Flournoy, *Metaphysique et Psychologie*, 2nd edition, preface by H. Hoeffding, Geneva and Paris, 1919.

de Psychologie,[3] is most interesting. He shows how different are the philosophical tendencies of his contributors and insists on the consequently greater value of their agreement on purely psychological problems. Such being the case it is easy to understand why some of the authors tend preferably towards structural analysis, others towards functional analysis and a third group towards genetic investigation. It is because of their underlying philosophies. Some do not expect any interpretation except in terms of the human mind itself, while others count on some more or less distant physiological explanation.

During the last ten years the leader in structural psychology has been H. Delacroix. M. Delacroix plays a very interesting part in the psychology of French-speaking countries. He has attempted to maintain the integrity of the realm of psychology against the encroachments of physiology on the one hand and of sociology on the other. That is the reason why his method is one of structural analysis. It is the favorite method of rationalism: to explain the human mind by reference to itself and to distrust any kind of "mental chemistry" that would seek the origin of mind in something other than itself. Therefore M. Delacroix remains wisely on his guard against all genetic formulations. These ordinarily tend either to explain psychological facts in infra-psychical, i. e., physiological, terms, or to trace them back to supra-individual, i. e., to sociological, phenomena.

We are here not concerned with religious psychology. But *La religion et la foi*[4] is a highly significant book from the viewpoint of method. Against genetic methods M. Delacroix raises three kinds of objections. In the first place, the concept of evolution is obscure. Secondly, the

[3] *Traité de Psychologie*, 2 vol., Alcan, 1924. G. Dumas, with the collaboration of Barat, G. Belot, Ch. Blondel, Bourdon, Chaslin, Claparede, Dagnan, Davy, Delacroix, Dugas, P. Janet, Lalande, Langlois, Lapicque, Mayer, I. Meyerson, Pieron, Poyer, Rabaud, Revault d'Allonnes, Rey, Tournay, Wallon.

[4] H. Delacroix, *La religion et la foi*. Alcan, 1922.

primitive stages, even if we could reach them, do not afford more information than the more evolved stages for they exhibit a reality already made and not a genesis. Thirdly, the permanent conditions of the possibility of a phenomenon give us better information concerning it than any genetic hypothesis, for this latter is pseudo-explanation. Against the sociological theories, Delacroix asserts the existence of a human mind anterior and superior to society, or at least of an individual infra-structure that makes possible the blossoming of social phenomena.

These principles have since been applied by M. Delacroix to the problem of the relation between language and thought.[5] The result represents a masterly analysis of this difficult question. Against the almost purely sociological tendency of French-speaking linguists (they are influenced by the school of de Saussure) Delacroix shows the indispensable relation between linguistics and psychology. Language is indeed a social product, but its functional conditions, its affective roots, and above all its rationality can only be understood through psychology. This rationality is especially emphasized by M. Delacroix, but without exaggeration, for, he says, "language oscillates between chaos and a cosmos."

Thus Delacroix gives us a new viewpoint regarding language. Psychologists have for a long time considered language as a pure nomenclature, as if things were simply designated by words, and as if, psychologically, words were nothing but auditory or motor images, or the like, in consciousness. Nothing is more superficial than this conception. Language is thought. Every thought process consists in the handling of symbols; and language is a necessary stage in the elaboration of these symbols. A word is not simply a label. It is a sound, bearer of a meaning and susceptible of grammatical treatment. This means

[5] H. Delacroix, *Le langage et la pensée.* Alcan, 1924.

also that a word is very difficult to isolate. It is not a unit. It constitutes the limit of an intellectual process of separation and identification. As to the sentence, it is not a simple sum; it is a whole made of reciprocal relations. Language, therefore, presupposes thought. Just as religion is the rational organization of affective data so is language the rationalization of chaotic phonal matter.

M. Delacroix, verifies his assertions by studying the acquisition of language by children and the loss of this function in aphasia. But his genetic analysis remains descriptive. Against the physiologists, he strongly argues that the verbal sign is not a conditioned reflex. Indeed, at first, signs adhere to objects. In order that they may really become "signs," the mind must sever them from the objects, must place them in a network of symbols, in that system of relations between symbols which constitutes the very stuff of reason.

In Dumas' *Traité*, Delacroix gives a complete analysis of intellectual functions, the wealth and subtelty of which are such as to forbid our summarizing it in so short a paper as this, but the general content of which fits entirely into the main lines of the sketch we have just drawn.

Another leader in psychological analysis is Paulhan. With the exception of a book which we shall review later, he has published since 1918 only three studies, *Le psychisme inconsicient,*[6] *La sensibilité, l'intelligence, et la volonté dans tous les faits psychologiques,*[7] and *Le présentisme.*[8] In his study of the unconscious, Paulhan continues his researches in the systematization of tendencies. Tendencies and our coming to consciousness of them are essential parts of psychic life, according to Paulhan. Consciousness, it is true, exercises an influence as a cognitive element. But psychic processes maintain the same nature and func-

[6] *Journal de Psychologie,* XVIII.
[7] *Revue Philosophique,* 1920.
[8] *Journal de Psychologie.*

tioning whether or not they are conscious. The theory of "presentism" set forth in the third mentioned paper, points out the exaggerated predominence in the mind of the present state, whatever it may be—sensation, emotion, or new idea. This preponderance is due to the insufficient or delayed control of former tendencies. Hence certain "presentist" characters, such as impulsivity, etc.

This idea of Paulhan's leads us to mention, in the field of the analysis of characters, the work of F. Mentre, particularly his book, *Espèces et varietés d'intelligence, Eléments de noologie.*[9] By the term "noölogy" the author means the science of individual types. Binet, Paulhan and others had already raised the problem, but Mentre suggests new classifications; these have already been criticized just as Mentre criticized his predecessors. A. Delmas and M. Boll have also discussed the subject in their book on "Human Personality."[10]

If we now pass from the field of structural to that of functional psychology, we shall find an entirely different source of inspiration. The most remarkable works in this second field are undoubtedly the studies of Claparede on *l'Intelligence,*[11] and on *la Volonté,*[12] and those of Larguier des Bancels on *l'Emotion et l'Instinct.*[13] Claparede is a pure empiricist. Few psychologists are so completely free from philosophical concerns, whether these are rationalistic or "empiristic" in the epistemological sense of the word. Sometimes he is anti-intellectualistic, when facts seem to lead him in that direction; at other times he is anti-mechanistic to the extent of seeming to tend towards finalism. The truth is that he grasps phenomena not as a theorist but as a physician. He sees phenomena as moving things, interwoven in their vital context and functioning; wherever a

[9] Bonard Paris, 1920.
[10] *La personnalité Humaine,* Flammarion.
[11] *Scientia,* 1917.
[12] *Congrès philosophique de Naples.*
[13] *Introduction à la psychologie, L'émotion et l'instinct,* Payot, 1921.

structural analysis seems to him impossible or simply difficult, he begins to give a purely functional description of psychological data. Furthermore, he is convinced that applications, if not the leaven of any science, are at least the criterion of a conception's fruitfulness. That is why his analyses are always written in a language most apt to describe the process in terms of action and of movement.

His paper on intelligence is from this last viewpoint a perfect model of a short sketch. In it he repeatedly emphasizes the vagueness of our present structural knowledge and thus he raises a great number of problems that are most of the time unconsciously veiled. He supplants structural knowledge with a functional synthesis as simple as it is charming.

Intelligence, says Claparede, responds to a need. "The particular need that arouses intelligence is the need of adaptation which arises whenever the individual is not adapted to environmental circumstances." There are two kinds of behavior that ordinarily adapt the individual to his environment: i. e., *instinct* or the system of hereditary mechanisms, and *habit,* the system of acquired associations. But when instincts fail and habits do not work, there is but one other recourse, trial and error. The method of trial and error, observable in the lowest forms of animal life (Jennings) can itself be divided into two stages which together constitute intelligence. Trial and error is either purely empirical, i. e., the steps taken are determined by a pseudo-choice made according to external circumstances; or it is systematic, i. e., the choice is determined by the consciousness of relations. Hence we have empirical intelligence and intelligence proper. But how does the readjustment which constitutes intelligence pass from purely empirical trials to systematized attempts? Here Clarapede's analysis becomes most fruitful because of the problem it suggests. Three periods can be noticed in any intellec-

tual act.[14] First there is a *question,* i. e., the maladjustment becomes conscious; then an *hypothesis,* or the imagination of a solution; thirdly, *control* or verification. These three operations are easy enough to describe in functional terms, but what is their mechanism? By what kind of mechanism does the particular state of consciousness which constitutes the question start and direct the search for a solution? How do hypotheses arise and follow one another? What is the nature of that process of rejection and acceptance which constitutes the control? Without ignoring the value of the fine German works on *Denkpsychologie,* Claparede emphasizes the fact that in these matters we know nothing; we possess static and structural analysis but we do not understand the dynamism of the functioning.

In an article on the will, as yet unpublished, Claparede makes similar statements. He distinguishes will from intentional act as he previously distinguished intelligence from instinct. Just as intelligence arises when instincts do not work so will makes its appearance when two intentions conflict.

These contentions have been criticized. Spearman accuses Claparede of defining intelligence "by reference to experimentation," the way in which it appears in children between six and nine years of age. But it is a strength to be able to consider things with enough freshness of mind to forget classical descriptions and to find a language which shows the gaps in our knowledge. It is to this method of procedure that Claparede owes the production of a few very searching pages on *la loi de prise de conscience.*[15] Observing that children are more quickly aware of differences than of similarities (though they generalize automatically all the time), he shows how it is maladaptation that creates consciousness, and from this observation

[14] Pillsbury expressed similar ideas in 1910.

[15] *La conscience de la resemblance et de la difference chez l'enfant,* Arch. de Psychol., XVII, 1919.

he draws a criticism of habitual ways of speaking, ways that are static and not functional.

The recent works of J. Larguier des Bancels, and particularly his fine Introduction to Psychology, have a similar orientation. Larguier considers functional description better for an introductory study, but he thinks that there should be a constant alternation between structural and functional psychology. Such a rhythm, he believes, cannot be anything but useful to the improvement of science.

For James, and particularly for McDougall, emotion is but a concomitant, or an affective aspect, of instinct. Larguier, through a very precise and fine analysis, arrives at the opinion that emotion, while necessarily and closely linked with instinct, is not its affective counterpart but its failure. In other words, it is when instinct fails that emotion appears; when instinct tends toward useful reaction, emotion is only harmful. Anger is not an adaptive reaction, a counterpart of the fighting instinct; it is a "brief madness" arising from the failure of that instinct. Instincts are, indeed, adaptive, but only in a general way, without anticipation of all possible cases. It is therefore not strange that they often fail. But, says Larguier, there remains the problem of determining why, in the case of certain individuals called "emotional," instincts miscarry more than in the case of others. There is also the problem of understanding the mechanism of emotion. Why does the failure of a given instinct take a certain form rather than some other? To such questions Larguier awaits the answer from psychology.

There is but a step between functional and genetic psychology, and most psychologists cannot be univocally classified. This is particularly true in the case of Pierre Janet whose recent works indicate an extremely interesting combination of functional psychology and genetic construction.

A synthesis of these new conceptions of Janet may be found in Dumas' *Traité*[16] and in three lectures delivered in London.[17] Furthermore, the *Meditations psychologique* (of which we shall speak again when we come to abnormal psychology) are full of allusions to the new ideas of Janet on the hierarchy of tendencies, or the different stages of development. These ideas, if we are well informed, will soon lead to some general study of the question. The works of Janet prior to 1914 are too well known to need mention here. Let us simply indicate the most recent orientation of this versatile and fruitful scholar.

The present method of Janet is that of the behavioristic psychology, but of a behaviorism which integrates all the phenomena of consciousness under the head of particular acts. Let us, for example, take the case of memory. Memory, says Janet, is an *account*, i. e., a certain mode of speech relating to an event; it represents the event more or less correctly and was constructed at the time when the other actions called forth by the event were performed.[18]

From the point of view of the old school of psychology, this is an unbearable paradox, since in order to narrate one should recall. But one nevertheless sees how interesting Janet's theory is. By making memory a mode of behavior and not a faculty, such a definition emphasizes precisely all that which, in a recollection, is arbitrarily constructed and not given; such a theory explains also why the classification and ordering of memories are so slow in the case of children, and depend so much on action, particularly on social behavior. This single instance at once shows Janet's present mode of analysis. Janet agrees with Baldwin on the point that most psychological operations

[16] *La tension psychologique et ses oscillations, Traité de psychologie*, Vol. I, p. 919-952.

[17] Brit. Journ. of Psych. (Medic. Sect.), Vol. I, Part 1, 3 and 4, and Vol. II, Part 1 (1920, 1921, 1924).

[18] Pierre Janet, *Les Souvenirs irréels*, Archives de Psychologie, XIX, 1924, p. 14.

are internalized social actions: "We repeat with respect to ourselves modes of behavior which have first been constructed with reference to others."[19] Memory, belief, reflection, logical principles are but accounts, promises of action, discussions, ethical rules, etc., internalized, through repetition within and for ourselves. From this viewpoint language seems to Janet to constitute the fundamental phenomenon of human psychology: man is a talking animal who talks his actions and acts his words. And, if in truth memory is an internalized narration, reflection, an internalized discussion, and belief, a promise, etc., one can see how the genesis of these fundamental operations would not have been possible without speech.

But these new views of Janet do not remain isolated and fragmentary. They have enabled him to construct, particularly in his courses at the College de France,[20] a doctrine that relates to the hierarchy of tendencies and constitutes a general genetic theory of the stages of mental development. The guiding idea is an attempt to classify psychological operations by their degree of difficulty, taking as a criterion their order of appearance. In brief, the important stages are the following: reflex stage; social stage characterized by the appearance of imitation; the elementary intellectual stage, marked by the emergence of the perception of relations, and therefore of language, and, along with language, of primitive memory conceived as a narration; the assertive period or stage of belief; the period of reflection (which is an inner discussion leading to the summation or synthesis of beliefs); the ergatic stage, marked by the appearance of the possibility of work (i. e., work assigned by oneself); the rational stage, and finally the experimental one.

Now—and it is here that the new ideas of Janet recur to his former conceptions, with reference to the dynamism

[19] *Ibid.*, p. 15.

[20] See the summaries in *l'Annuaire des Cours du College de France.*

of mind—the establishing of these stages is guided by an extremely interesting principle which marks the point of union between pathological and genetic psychology. Each of the stages corresponds to one of the successive strata of mental structure, or, stated more exactly, to one of the successive degrees of psychological tension. This tension may vary. The variations of level are linked with states of depression and excitation, fatigue, age, emotions, etc. But it must be particularly noted that every mental disease is marked by a regression in the hierarchy of tendencies and is thus characterized by a certain level beyond which the mind seems unable to pass. Yet these oscillations of level are not sufficient to characterize a psychological tension: it is necessary to add what Janet calls the variation of the activation degree of the tendency. A tendency may be in a latent stage. It may bring forth a desire, an effort, or a complete action, or give birth to the "derivation" called emotion. Moreover, between a latent state and complete action, the tendency may lead to an interior thought process, a kind of reaction of the subject himself to his own actions, happily compared by Janet to the proprio-ceptive reflexes of Sherrington. It is the interference of the oscillations of the degree of activation with the oscillations of the mental level that produces the general oscillations of psychological tension.

Among other genetic attempts mention must be made of Ph. Chaslin's works concerning the genesis of mathematical concepts. Everybody knows that the Italian psychologist Rignano has followed Mach in an interesting conception of reasoning considered as a "mental experience." This work was of great interest to the psychiatrist Chaslin whose very rich clinical experience led him to study the pathology and psychology of reasoning. He left a posthumous study on mathematical reasoning, a few abstracts of which have been published in different reviews.

To be mentioned also is a little book by M. Cresson on *Les réactions intellectuelles élémentaires.*[21] The author attempts to trace the diverse forms of reasoning to a sort of unconscious analogical reasoning that is constantly manifest in perception, recollection, etc.

Works on educational psychology, which are to be discussed elsewhere, naturally contain also several new ideas in the field of genetic psychology.

But the great innovation in genetic studies is the appeal made to sociology in explanations of the higher psychological functions. In this regard Baldwin is a forerunner. He has not had as great an influence as he should have had, except on the psychology of Janet. The most important influence came from sociologists themselves, principally from M. Levy-Bruhl. Durkheim, as is well known, considered religion, ethical feelings, personality, logical reasoning, etc., as products of social life conceived as independent of individual consciousness, as external and superior to it. It is also known how M. Levy-Bruhl attempted to verify these doctrines in the field of logic, through the study of the judgments and categories peculiar to primitive mentality. These works have deeply impressed the psychologists writing in French and have directed towards sociological explanations at least two of them: Ch. Blondel and G. Dumas.

Ch. Blondel, as he has himself said in an article in the *Journal de Psychologie,* has been influenced by both Levy-Bruhl and Bergson. The former led him to distrust individualistic explanations; the latter taught him the part played by language and therefore by social life in the very structure of intelligence. Thus, since 1914 (as appears by reference to a book to which we shall later refer, *La Conscience morbide*), Blondel has distinguished two elements within the human mind, the purely psychological

[21] Alcan, 1922.

and the social. The former comprises all that the mind is unable to integrate either into collective sentiments or into the verbal and conceptual forms due to society. It is, then, the inexpressible: on one hand, the unconscious motor activity and, on the other, the mass of elusive feelings, somatic sensations, etc., which in normal life are completely suppressed or, as Blondel says, *décantés* in favor of whatever can be socialized or conceptualized. The genesis of the higher psychic functions brings us back, says Blondel, to the history of the socialization of the mind.

It is in Dumas' *Traité* that the most categorical pages of Blondel on this subject are to be found.[22] In a study of the will Blondel begins with a sharp and witty criticism, often exaggerated but always suggestive, of the introspected experiences in the realm of the will. He praises James for having most clearly seen the *sui generis* character of the will, but he insists even more strongly than this author upon the mysterious and inexplainable element in the "fiat" if one remains on a purely individualistic plane. Hence his conclusion: the "fiat" is less a decision than a manifestation of obedience—obedience of the individual to the group imperatives.

An analysis of personality leads Blondel to similar conclusions. Without society, personality would be reduced to the consciousness of body, to coenesthesia. But, strange to say, this very intimate ego, which is our most individual possession, is also the least personal thing we know. The continual introspection of an Amiel leads only to the realization of the strange and the disquieting. "The personality that loses itself in the depth of the ego finds itself again only at its surface." It is in plunging into the society of men that we rediscover ourselves. The social ego which at first appears to be most external is thus our real self. Personality is social in character. This paradox is reflected

[22] Chapters on *Les volitions* and *La personnalité, Traité,* Vol. II.

also in theories: the psychological theories that have limited themselves to the individual alone have always ended by considering the ego an inexplicable datum. Sociology alone permits us to get a glimpse of its genesis.

From a different point of view G. Dumas himself comes to similar ideas. With A. Comte he considers mind as a compound of physiological and social elements. It is true that Dumas places himself on ground that is in this respect privileged. He is concerned with the expression of emotions. The fine works of Dumas on this subject are well known. They go back beyond 1914. But in his *Traité* Dumas has renewed the exposition and has been able to show how empty are certain psychological theories that appeal to fanciful constructions where physiology and social psychology are sufficient for an exhaustive analysis of the facts.

These genetic attempts inspired by sociology have from one side or another aroused a rather strong opposition. We have already spoken of the position of Delacroix. In the field of ethical and religious feelings, G. Belot has, in Dumas' *Traité,* defended a similar conception, maintaining the psychological and individual nature of these feelings. But it is especially in the realm of thinking that the debate becomes more heated. Not to speak of philosophers who see in "sociologism" a sort of neo-pragmatism that weakens the value of rational principles, psychologists themselves have some difficulty in admitting that all of logic may be the work of society. Touching this subject, I. Meyerson published, in *L'anné psychologique,* a very interesting critical study of the "Primitive Mentality" by Levy-Bruhl.

According to I. Meyerson, it is not necessary to invoke a kind of non-rational causality in explanation of the phenomena collected by M. Levy-Bruhl under the name of "mystical causality." We need merely recognize that prim-

itive man, as is only natural, has not yet come to believe in the regularity of the laws of nature, and that he looks upon nature as a vast system where everything is related to everything and kept in an instable balance. Such being the case a rational principle of conservation is sufficient to explain the fact that primitive man clings to traditions and customs which we judge, and which he also sometimes judges, queer and incomprehensible. It is simply that primitive man maintains scrupulously the existing modes of action, for fear the world might collapse, i. e., for fear the slightest change might bring forth some kind of unexpected and dangerous result. The apparently nonrational element would thus be explained by a very rational principle of conservation. Here let us mention also that M. Paulhan, whose talent as an analyst is well known, has written a book on social transformation of feelings, a book which provides a balance between sociology and psychology.[23] Without disregarding the individual nature of feelings, Paulhan studies their socialization and the spiritualization which follows from it. The analysis of sexual feelings is particularly well done.

In the field of social psychology, to which many contemporary scholars have been led through their genetic interests, mention must be made of studies on language, the place of which is to be found half way between psychology and sociology. M. Bally has continued his fine studies on stylistic. These inspired G. Vaucher to write a thesis on affective language and judgments of value.[24] The *Journal de Psychologie* has devoted to the psychology of language an important brochure with contributions from Meillet, Bally, Vendryès, Bloch, Sechehaye, and others.

[23] *Les transformations sociales des sentiments.* Flammarion, 1920.
[24] *Le langage affectif et les jugements de valeur.* Alcan, 1925.

Abnormal Psychology

Particularly in France, because of the masterly works of Th. Ribot, it would not have been possible before the war to separate abnormal psychology from general psychology. Even now quite a few general systems of psychology lead to abnormal psychology and vice versa. This is particularly true in the case of the work of P. Janet and Ch. Blondel. Nevertheless on the whole one may say that abnormal psychology, because of the difficulty of the questions raised and the relations of their solutions to medical and physiological problems, has become in some measure an autonomous science. At any rate the time is past when one could, as Ribot did, devote a lifetime to the study of pathological methods without oneself meeting a single patient. But this does not mean, of course, that Ribot's work as an initiator has not been necessary and most fruitful.

The present status of abnormal psychology in French-speaking countries has been very clearly set forth by Dumas in two of the longest chapters of the *Traité*. These papers sanction in particular the official victory of the ideas of Babinski—ideas already old—insofar as hysteria is conceived as simple suggestion. It is true that not all the authors have accepted these ideas with equal conviction. In French Switzerland, Claparede and H. Flournoy, while not maintaining the classical conception in its entirety and while acknowledging with Babinski that the explanation of hysteria is to be found more in psychology than in physiology, nevertheless assert the authenticity of some disputed facts. Pierre Janet also refuses to define hysteria in terms of suggestion alone and continues in his last works to defend an original conception of it. In his earlier doctrines, this conception represents an explanation of hyste-

ria by reference to automatism. According to his later conception (behaviorism), automatism is itself quasi-action, or action of low tension; in such action the whole personality does not collaborate and the result is that impulse is stronger than reflection. As regards the hierarchy of tendencies or the stages of mental development, hysterical behavior is to be located at the stage of belief and may not be placed on the level of reflection, or the compensatory synthesis of beliefs.

Janet's latest works on abnormal psychology are *Les Médications psychologiques*[25] and *Medecine psychologique*.[26] In these books Janet presents a very complete history and a critique of the different systems of psycho-therapy and gives a full and extremely rich account of the procedures based on the idea of psychological force and its economy, and on the fundamental idea of tension oscillations. He is thus led in each case to establish a kind of "budget for the mind."

One of the most striking novelties in abnormal psychology is the notion of morbid consciousness due to M. Blondel. Such is the title of a book published in 1914. As already noted, the idea has been the starting point of a movement in general psychology inspired by sociology. Since Claude Bernard, most psychiatrists and even most pathologists in every field have started with the idea that the pathological and the normal are identical in nature and that a simple difference of degree distinguishes disease from normal oscillations. In contrast hereto Blondel states that the morbid consciousness is a psychic reality *sui generis*, irreducible to normal ways of feeling or thinking—a reality that must be studied in itself and for itself. Here is an attitude similar to the one taken by M. Levy-Bruhl with regard to primitive mentality. Morbid consciousness is, in fact, characterized by certain paradoxes: motor, affec-

[25] 3 vol., Alcan, 1919.
[26] Flammarion, 1923.

tive, logic paradoxes. The last mentioned of these is particularly interesting; the patient's thought swarms with contradictions, irrepressible and inexpressible concepts queerly linked with a word taken from the current language but given an entirely different meaning.

Such a consciousness, says Blondel, is not a normal consciousness distorted. It is a unique consciousness different from ours and therefore incapable of conceptualization and of socialization. It is due, according to Blondel, more particularly to the patient's richness in somatic sensations and feelings. With the normal being, these sensations, being inexpressible, are "decanted" through the socialization of thought, for thought maintains and expresses only what is common to all. With the patient the elements being more abundant and different from ours, cannot be "decanted." Hence his non-socialized and consequently strange consciousness is an inexpressible consciousness, ill adapted to ordinary speech. Hence the contradictions. For to the patient words have a different meaning. He feels differently and experiences a resistance due to common language and common consciousness.

This conception of the purely psychological, placed in opposition to the social, offers some analogy with certain conceptions of psychoanalysis. "Decanted" realities are not without similarity to suppressed realities. The split between the psychological and the social reminds one of the opposition which Bleuler thinks characteristic of the schizophrenic between autistic and socialized thinking. Nevertheless, exemplifying a not uncommon paradox in the history of ideas, Blondel is a merciless enemy of psychoanalysis. His book on the subject is a biting and harsh criticism of Freudian theories.[27] Here a few words would be in place concerning the influence of psychoanalysis on

[27] *La psychanalyse.* Alcan, 1924.

the development of abnormal psychology in French-speaking countries since 1914.

The novel tendency during that period has been an increasing interest in psychoanalysis on the part of French-speaking psychologists. If religious psychology were to have a place within the limits of this paper, it would be necessary to mention first of all Th. Flournoy, the genial and fruitful psychologist of Geneva, whose works previous to 1914 were an anticipation of the useful results of psychoanalysis. In a paper on *Une mystique moderne,* published in 1915, he made a remarkable and very searching application of the Freudian methods.[28] Flournoy's influence has been and remains great in French Switzerland, and all French Swiss psychoanalysts are his disciples.

To state things briefly and without reference to the historical evolution of the doctrine, it might be said that among French-speaking psychologists we may distinguish three attitudes toward psychoanalysis.

Some are openly hostile. Without referring to the authors, unfortunately still numerous, who criticize it without being well informed, we may say that the most intelligent criticisms have been made by Blondel (*loc.* cit.), Chaslin[29] and Ombredanne.[30] Others, without of course accepting all of the Freudian ideas, are strong advocates of the psychoanalytic methods. Several among this number have made valuable contributions to the subject. We would mention in France, the works of Hesnard, Laforgue, d'Allendy, Borel, Robin, Minkowski; in Switzerland, works by H. Flournoy, R. de Saussure (among whose publications there is an excellent book on the general doctrine of psychoanalysis[31]), Odier, Christin, Baudouin; in Belgium, the contributions of Varendonck. These writers have in-

[28] *Arch. de Psychol.*, XV.
[29] *Journ. de Psychol.*, 1923.
[30] *Rev. Philos.*, 1922.
[31] *La méthode psychanalytique.* Payot, 1922.

augurated a yearbook of psychoanalysis, an interesting volume of which has already been published. It contains a complete bibliography of psychoanalytical works written in French during the last few years.[32] Finally, a third group assumes an attitude of sympathy and critical reserve, and tries to point out what of the material presented by psychoanalysts is fruitful and what must be ascribed to the spirit of systematization. In Switzerland, Claparede, Bovet and Larguier des Bancels have published several studies replete with suggestions. In France, Dumas has devoted some very interesting pages of his *Traité* to Freudianism, and put in a particularly clear light the psychiatric usefulness of the concept of suppression. In a similar spirit, H. Claude, with his students at Sainte Anne, is making a number of different investigations of schizophrenia.

A propos of psychoanalysis we would mention an interesting book by Varendonck, *Evolution des facultés conscientes.*[33] This represents a psychology of intelligence studied from a dynamic and affective point of view inspired by Freudianism.

But with such a rapid review of the work of Janet, of Blondel and of those inspired by psychoanalysis we have not exhausted the studies of French-speaking authors in the field of abnormal psychology. To be mentioned also are the books of Logre and Devaux on *Les anxieux*[34] and of Dupré on *La pathologie de l'émotivité et de l'imagination*[35] an already mentioned book by Delmas and Boll, and the work of M. de Fleury on *Les états depressifs et la neurasthenie*,[36] the studies of Hartenberg on *Les psychonevroses anxieuses;* works by Laignel-Lavastine, Revault d'Allonnes, Mourgue, etc., etc.

[32] *L'évolution psychiatrique.* Payot, 1925.
[33] Alcan, 1921.
[34] Masson, 1917.
[35] Payot, 1925.
[36] Alcan, 1924.

Physiological Psychology

Long ago we should have mentioned the names of H. Pieron and E. Rabaud. But even though Pieron's works may at any time delve into general or abnormal psychology, they nevertheless stand by themselves, because the strictly physiological and experimental methods of their author have obliged him to cling to special problems.

We mention first a general work by Pieron on *Le cerveau et la pensée.*[37] It is a well-informed, clear, and up-to-date review of psycho-physiological problems, particularly of questions of cerebral localization which have been so deeply changed by observations on wounded soldiers during the war. This book contains also a complete study of the physiological problem of aphasia and several new features such as an interesting physiological schema similar to that of Claparede. Pieron has also published in the *Année psychologique* (which he directs since Binet's *death*), in the *Journal de Psychologie,* and in various French biological Bulletins a great number of papers and notes on psycho-physiological questions. Three of these studies must be mentioned. First, an *Essai d'analyse experimentale du temps de latence sensorielle.*[38] In this study Pieron takes as a working hypotheses the idea that "the decrease in the time of releasing peripherally a sensorial nervous influx through a physical stimulus of increasing intensity must, since it is capable of determining to a great extent the general aspect of the phenomenon, result in decreasing the reaction time considered in relation to the increasing intensity of excitation." Then in a paper published in 1922[39] on new researches in the analysis of the time of sensorial latency Pieron succeeds in confirming this

[37] Alcan, 1923.
[38] *Journ. de Psychol.*, 1920.
[39] *Année Psychol.*, Vol. XX.

hypothesis and discovers a general law relating to the decrease of reaction time. Turning to the second of the studies above referred to we would call attention to a short but important note: *Du role des reflexes localisateurs dans les perception spatiales,*[40] in which Pieron supports the interesting idea of nativism in respect to reflexes. Nativist theories, according to Pieron, must be rejected as regards the associative level of knowledge, since the associative reactions of spatial perception, for instance, are acquired only by an empirical process of trial and error. But certain congenital reactions of localization show that localization is also made through a *"prise de connaissance"* of spatial reflexes, and this allows the partial reintroduction of nativistic theories under a new form. The third of Pieron's studies alluded to above is presented in an important paper entitled *Les problèmes psychologiques de la perception du temps.*[41] Here Pieron expresses a great number of useful suggestions concerning the difficult question at issue. Attention should be called also to another research by Pieron on the memory of digits and forms,[42] and to works by Madame Pieron on various tests of aptitude, on sensorial transfer, etc.

In this same field M. Foucault and B. Bourdon have made valuable contributions, the former on sensations and perceptions, the latter on exercise, fatigue, rest, persistency of acquired habits, etc. The question of psychological heredity has been excellently treated by Poyer.[43]

M. Wallon has contributed an interesting study on motor reactions in emotions.[44] His two chapters in Dumas' *Traité* on the biological conditions of consciousness and on the subconscious life are full of useful ideas. His book on *L'Enfant turbulent* contains also much in the nature of

[40] *Journ. de Psychol.*, 1921.
[41] *Année psychol.*, XXIV.
[42] *Ibid.*, XXII.
[43] Alcan, 1921.
[44] *Année psychol.*, XXII.

physiological psychology. Lastly, mention must be made of a forceful study by Wintrebert in *Le mouvement sans nerfs.*[45]

To physiological psychology belongs animal psychology. Pieron, who himself made a great number of researches in this field (particularly on memory curves of mollusks) has given a good summary of it in Dumas' *Traité.* Moreover, E. Rabaud has made several interesting contributions to this subject as well as to pure biology. Rabaud's orientation is towards integral mechanism. No one more than he attacks anthropomorphism, finalism, vitalism under any form. No one is a more enthusiastic believer in the continuity between the purely physiological and the intellectual, through the steps of reflex and instinct. His work on instinct tends to show that instinct is far from being infallible and immutable, as too many seem to think. Instinct is but a collection of reflexes that work mechanically, right or wrong according to circumstances.[46] On the other hand, the reflex or instinctive mechanism is not merely dependent on external stimuli but is influenced by other factors such as internal secretions. From this point of view Rabaud studied the maternal affection of mice. Giard had explained this instinct through the advantage and well being which the mother derives from it. Rabaud, after criticizing this theory in detail, shows that a female is attracted by the young of another female when she reaches the middle period of her pregnancy. This attraction according to Rabaud depends on internal secretions of the ovary itself.[47]

[45] *Journ. de psychol.*, 1921.

[46] *Journ. de psychol.*, 1921. See also *Bull. Biol.*, 1918 and 1919, where Rabaud shows that a certain caterpillar lives underground simply because it flees from light. The so-called simulation of death belongs to the category of immobilization reflexes, the mechanism of which has been studied by Rabaud.

[47] In the field of animal psychology mention must be made of the fine researches of Ferton on the life of bees and wasps. These correct many a hasty judgment due to Fabre. We refer also to A. Forel's work, *Le monde social des fourmis* (1921), a very important summary of a life-long observation of the customs of ants.

We thus come to the most striking novelty in the field of physiological psychology during these last years: endocrinology. The researches of Gley, Mayer, Laignel Lavastine, Claude, and Athias have indicated the great number of relations between internal secretions and reflexes, instinct, character, emotions, etc. Dumas gives a good general account of the question in the second volume of his *Traité*.

Problems Related to Psychology

It would be difficult to close this rapid review of psychological works written in French without indicating the implicit or explicit psychology found in the works of important authors on logic and epistemology.

In the field of logic we must speak of the *Traité de Logique* by Goblot.[48] It contains a theory of reasoning that is of interest to the psychologist. The syllogism, according to Goblot, represents only a part of deductive reasoning. Deduction consists essentially of a mental construction, similar to what Mach and Rignano call a "mental experiment." Thus, mathematical reasoning consists of spatial or numerical constructions, the rules of which are not rules of logic but the propositions previously accepted. The part played by the syllogism is only to permit the application of these rules to new constructions which are therefore the essence of reasoning. This theory is psychologically very interesting and converges with the teachings of the German *Denkpsychologie*.

In epistemology, the names of Brunschvicg and Meyerson must be mentioned. In *L'experience humaine et la causalité physique*,[49] by the former, is to be found a genetic psychology of the notions of cause and of object. As we have elsewhere endeavored to show,[50] it may be compared

[48] Colin, 1918.
[49] Alcan, 1922.
[50] *Journ. de psychol.*, XXI.

with Baldwin's system of genetic logic. Although M. Brunschvicg is a pure epistemologist, the reading of his pages is indispensable to anyone who would again take up Ribot's researches on the evolution of general ideas. It is much the same with M. E. Meyerson's works, *De l'explication dans les sciences* and *la deduction relativiste.* Meyerson's central idea is that the notion of cause belongs with that of logical identification and may thus be contrasted with the notion of law. Such a theory presupposes a psychology of perception, as indeed is explicitly stated by Meyerson himself: to perceive is to identify. But while Brunschvicg believes in the plasticity of reason, in genetic transformations of the categories, theories which open the door for a genetic psychology,[51] M. Meyerson is a "fixist" and thinks that always and everywhere, with animal or primitive man, with children or civilized people, perception is a rational process and reason is invariable, both being essentially an identification of diverse elements.

Bergson has published only two new books since 1914, *L'energie spirituelle,* a collection of previously published studies, and *Durée et simultanéité* in which he is led by Einstein's physical theories to reconsider his conception of time.

Among other epistemological works touching psychology we would call attention to a fine book by J. Paliard, *Intuition and reflexion,* which presents some highly interesting ideas on the relations of life and consciousness. Worthy of mention is, finally, the attempt of P. Masson-Oursel (*La philosophie comparée*) to find some parallelism between European philosophy and Chinese and Hindu thought. A chapter devoted to a comparison of psychologies gives valuable information for history of psychology.

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[51] Brunschvicg in this respect agrees with A. Lalande whose fine methodological preface to Dumas' *Traité* must be mentioned.

SOCIOLOGY[1]

IN ORDER to form a precise and accurate idea of the contemporary sociological movement in France, it is necessary to know its source, or, more exactly, its sources. One school undoubtedly demands attention as much for the rigor of its scientific method as for the abundance of its production and for its incontestable influence in and out of the sociological domain: it is the school of Durkheim. But in believing, as one might be tempted to do, that this school alone represents all of French sociology, or all that counts in French sociology, one would not only commit an injustice but one would also place himself in an unsatisfactory viewpoint in regard to understanding the true nature of the Durkheimian sociology, which is at once in conflict with itself and is at the same time continuing. There is indeed some diversity in our contemporary sociological movement, because there was some diversity yesterday, and because the movement constantly scatters in the different directions—often, moreover, as we shall see, less and less different—which the nineteenth century has marked out for it. The nineteenth century we say. In fact one may well mention, and it is right to mention, the names of some great precursors, from Aristotle, formulating his famous definition of man as a political animal, to Montesquieu, deducing his concept of social law, and Condorcet, that of the future and of progress. It is none the less true that sociology is a thing of the nineteenth cen-

[1] Translated from the French by Frances Noble.

tury—a century of history and of experience, of progress and of relativity—and that it is, also, essentially a thing of France. Tracing, in 1900 in the *Revue Bleue,* the course of sociology in France in the nineteenth century, Durkheim could justly write: "To determine the part which belongs to France in the progress that sociology has made during the nineteenth century, is to give, in large measure, the history of this science, for it is among us and during the course of this century that sociology was born, and it has remained a science essentially French."

It is, then, the nineteenth century, and especially the nineteenth century in France, that has defined and opened all the directions which we today still find in the science which concerns us. If we would retain only that which is essential and that which throws light on present conditions, we would say that these directions are four in number. Around them, and with a varying importance, all the other movements center; among them, moreover, there is more than one common trait and more than one instance of borrowing, as well as a number of mutual reactions which are often profitable. At first there were two directions. They were very different and were more independent of each other than doubtless was wise. On the one hand, we find that which dominates the entire movement and proceeds from Saint-Simon and from Auguste Comte to Durkheim; on the other hand, that which, under the names of social reform and, still more, of social science, goes from LePlay to Paul Bureau, passing by way of Henri de Tourville and Demolins. Finally, two last directions: one, starting from the Englishman Spencer, then defined, rendered precise, and enlarged by Espinas, contributes notably to the formation of the Durkheimian sociology, even while subsequently existing side by side with it and distinct from it in the form of a modified organicism; the other, brilliantly represented by Gabriel Tarde, pro-

vides, according to Tarde, not so much a new, positive route across the sociological field as a concentration point and guiding idea for the attack which individualism, whether metaphysical or psychological, ceaselessly directs against sociology. The latter will be accused—almost always excessively, but not always without reason or usefulness—of considering of no importance the initiative and rights of individual conscience and reason. From this viewpoint, which, is so to speak, negative, the sociology of Tarde, which has remained, in one sense, without a future, because there is no sociological school which bears his name, ceaselessly regains life and actuality. It is truly around the individual, whom Tarde would make at once the author of all progress and the single real sociological factor, that there is today being ceaselessly waged the great battle between partisans and opponents of sociology. And that is natural enough. In spite of its queer etymology, has not sociology among us truly taken for its object, not so much the strictly historical and limited knowledge of societies, as the larger, more philosophical and more human knowledge of the individual in his environment and his social order, and the determination of what he, as an individual, does or does not owe to that environment?

But in order that such knowledge may be possible and may have an effective newness, it is necessary that a definite reality be assigned to the environment whose influence on the individual one wishes to maintain. It is exactly because such knowledge will be founded on this reality—which is, moreover, quite concrete and not at all metaphysical—and because it will proceed from this reality to the individual—we say will proceed to the individual, not will proceed systematically to deny him—for these reasons the knowledge will be sociological. Three of the schools named by us, despite all their differences of opinion and methods, agree in thus understanding it. The fourth does

not believe in the existence of sociology proper. LePlay and Paul Bureau proceed to the individual only from what they believe to be his essential social environment, the working-class family.[2] Very similar is the view of Espinas. In contradiction to Spencer, he affirms the reality of the collective consciousness, giving as the essential and natural type thereof the family and the nation. These are, for him, simply individualities that are more extensive than individuals in the ordinary sense, whereas the latter, in turn, are only societies that are more restricted than the groups commonly so designated. Of a kindred view and much more forceful is Durkheim, whose struggle in favor of the concrete and specific reality of society and of the collective consciousness is a matter of common knowledge.

The agreement between the different schools, and the persistence from the founders down to the very present of that capital notion of a specific social reality, on which sociologists continue to count, is one of the most characteristic traits of their science. They today like to pay homage to a precursor who is too much and injustly forgotten, and to whom several important works and essential preoccupations of the present hour have just given a lively actuality: Saint-Simon. In his previously quoted article in the *Revue Bleue,* Durkheim did not fail to assign to Saint-Simon a fine, prominent place or to pay him the homage that had been denied him by Auguste Comte. Later, in 1915, in a chapter on sociology written for a volume devoted to French science and presented at the International Exposition in San Francisco, he repeated the same homage. "Saint-Simon," he wrote, "was the first to declare that human societies are realities, certainly of a unique sort, different from those that one finds in the rest

[2] It is important to note that despite their anathemas against the Durkheimian notion of a collective consciousness, sometimes deliberately misrepresented, it is indeed n the study of groupings and not in the study of the individual that this school begins.

of nature, but subject to the same determinism."[3] Finally, in a course on Saint-Simon, a course of which the *Revue Philosophique* has just published several sections (May-June, 1925), he brought to the public eye the following significant passage by Saint-Simon: "Society is far from being a simple agglomeration of living beings whose actions have no other cause than the decisions of individual wills, no other result than brief and unimportant accidents; society is, on the contrary, a highly organized machine, all the parts of which contribute in independent ways to the functioning of the whole. The grouping of men constitutes an actual unit."[4] And M. Maxime Leroy, who, along with Messieurs Bougleé and Halevy, is one of those who are today doing the most to rehabilitate Saint-Simon, also emphasizes his original and significant conception of the social being which one must not, as he wisely remarks, lower to the vulgar level of a simple organism.[5]

Speaking of the sociological and politico-social attempts of Saint-Simon and of Auguste Comte, Durkheim has written of these two men, who have also been described as Messiahs: "It is in reason alone, that is to say in science, that the means of bringing about the moral reorganization of the country were sought. It is from this intellectualistic effervescence that there resulted simultaneously Saint-Simonism, Fourierism, Comteanism, and sociology."[6] Thus we find Saint-Simon and Auguste Comte, with their idea of a distinct social reality, the object of a distinct social science, as objective as the other sciences, at the beginning of a positive and rationalistic sociology which, after an eclipse of a good quarter-century, rose again with Espinas and came into flower with Durkheim and his school.

[3] *La Science Francaise*, 1915, Vol. I, p. 40.
[4] *Revue Philosophique*, 1925, p. 331.
[5] Max. Leroy, *Henri de Saint-Simon*, 1924, p. 319. See also Bouglé, *L'Oeuvre d'Henri de Saint-Simon—Textes Choisis*, 1925, and *La Nouvelle Edition de la Doctrine de Saint-Simon*, by Bouglé and Halévy, 1924.
[6] *Revue Bleue*, 1900, p. 612.

But during this actual eclipse of the tradition of Saint-Simon and Comte, preoccupations with social science and social reorganization analogous to theirs in point of departure, although very different in results and in the doctrines to which they led, arose in the work of one who was also a thinker, an ingenious man, an enthusiast, and who was also destined to found a school: Frederic LePlay. His name and method, even if not his doctrine, must be mentioned if one would today understand Paul Bureau, just as Saint-Simon and Auguste Comte must be considered if one would understand the work of Durkheim. There is in LePlay—and, unfortunately, it is doubtless this that is best known about him—a moral and religious doctrine of individual reform and of paternalism which is far from having had the success and influence that its author expected. But it should be recognized that he also inaugurated, and that he even began by practicing objectively and independent of all doctrine, a distinctive method which can be dissociated from his specific teachings. In fact, it has been so dissociated by his dissenting disciples, founders of the *Science Sociale*. This is an instrument of method, as opposed to the *Réforme Sociale*, which is an organ of doctrine. LePlay's method has exactly two eminently sociological peculiarities. It declares social facts worthy of scientific observation just the same as natural facts, and it focuses this observation at the outset on a reality that is collective and not individual; namely, on the working-class family. It is for the purpose of dissociating the method from the doctrine, of making it precise, of ridding it of the inadequate mathematical considerations of family budgets, of extending it, according to LePlay's own indications, from the particularistic monography of the family to the comprehensive study of society with its physical and social conditions of existence, that Henry de Tourville and Demolins have worked. And this transformation of LePlay's

method, wrought by these founders of social science, terminates today, as in its last, most precise and scientific conclusion, in the sociology of Paul Bureau.[7] This stands face to face with Durkheim's sociology. It makes pretensions of also being an objective science, but of being wise enough likewise to make a place for liberty. The recently deceased author codified this in a book called *Introduction à la méthode sociologique*. This work appeared in 1923 as the manifesto of the new school of social science.

A bit earlier, J. Wilbois, a rather liberal member of the same school, began the publication of an introduction to sociology in the *Revue de Metaphysique et de Morale* for 1920 (pp. 471-494). But the work of P. Bureau remains much the most important and most characteristic work of this tendency. We have said that he built upon an expansion of the method of LePlay. As long ago as 1855, the latter had perceived the inadequacy of the method of family monography when the family was studied simply through its budget. "A number of details," said he, "escape this financial analysis of human life." It was in order to meet this inadequacy that he had added to his first monographic framework two rather indeterminate rubrics. One of these came at the beginning and was entitled "Preliminary Observations." This was designed to contain a description of the place where the family lives, of the organization of the work in which it is engaged, of its mode of existence, of its traditions, etc. The other rubric, entitled "Diverse Elements of the Social Constitution," also served to enlarge the analysis. There remained the step of definitely leaving the family in order to comprehend social life. LePlay felt the necessity of so doing and made the attempt in dealing with England. But it was Henri de Tourville who undertook methodically to co-ordinate in a

[7] *Cf.* on this movement Pierre Meline, *LePlay: l'ouevre de science*, Paris, Bloud, 1912; *Le travail sociologique, ibid.*, 1909. Also *Cahiers de la Nouvelle Journée, I. Paul Bureau le sociologue*, Paris, Bloud, 1924, p. 65-127.

general nomenclature the different orders of social facts and also to define the setting of the study of societies in the narrow sense of the word, and of all the "social repercussions" of laws observed there.

This retrospect was necessary for an understanding of the exact sociological method of P. Bureau. The latter, indeed, absorbed this tradition and then passed beyond it. First he absorbed it. "I will," declared he, "borrow considerably from the nomenclature of social facts elaborated almost forty years ago by Henri de Tourville in dealing with the works of LePlay, though I will make important simplifications and changes such as have been shown necessary by experience. Just as it stands, this brief questionnaire is, according to me, a valuable instrument of analysis, and doubtless this will soon be realized if students will consent to follow LePlay's recommendation to study the working-class family. I am aware that this method seems to some discredited and antiquated. Nevertheless the analysis of wisely chosen samples remains the favorite and most certain method in all empirical sciences. . . . As has long been said, the working-class family, that is to say the family which draws its means of subsistence largely from the manual labor of its head or of its members, furnishes an excellent introduction to the general study of society as a whole. Since the organization of private life occupies such an important place in the general economy of society, no better avenue could be found to the interior of society itself; and the choice of a working-class family is likewise justified by the fact that, alike because of its work and because of its means of existence, this family, more than any other, is under the influence of determining elements of the group under observation. By virtue of their intellectual culture or material resources, families in moderate or good circumstances can raise themselves above the action of these elements. The working-class family is

more the prisoner of circumstance, and by reference to it one can best perceive the action of the environment. Moreover, to recommend the monographic method is not to say that the completion of a single monograph is sufficient. On the contrary, it is advantageous to renew observation on a different family and to check by a new test the results of the first study. All that can be said is that the scrupulous analysis of a well-chosen sample, better than any other procedure, permits the penetration of those mysterious fastnesses of psychological life where the social life of a people is developed and organized." [8]

Thus, as one sees, knowledge of the family retains its privilege as the key to the knowledge of society; and this two-fold knowledge can be obtained through the use of a nomenclature which is no other than that of Henri de Tourville—a nomenclature which Bureau describes and on which he comments in a long and interesting chapter.

But let us note how he goes beyond his masters and what seemed to him their geographical materialism, in order that, without renouncing science, he might establish a "sociology of liberty," as he has himself baptized it. It was the study, classic in the circles of science, of the fjords of Norway and of the social type which their material configuration is thought necessarily to produce that led him to abandon the determinism of his school. "As my study progressed," says he, "I felt a triple affirmation arising in me with irresistible force. If, said I to myself, a powerful fairy gave me the ability to change these granite mountains into beds of oil or of copper, or into good arable land, it is certain that the social structure of all Norway would be profoundly modified. But if, on the other hand, without changing anything in the geographical configuration, a chemist should tomorrow discover the means of using this granite in combinations capable of engendering force

[8] P. Bureau, *Introduction à la Science social*, p. 185.

and heat, what would not be the extent of social transformations arising from the modification of economic technique? In some decades Norway would be covered with workshops and factories, and would become one of the principal manufacturing regions of Europe. Finally, if, without modifying either the geographic structure or the technique of work, a lay mission composed of the masters of French rationalism, came to flood with conferences, pamphlets, tracts and propaganda this peasant population so firmly entrenched in the somber Lutheran dogma of sin and salvation, if this mission succeeded in convincing these pious peasants—that all their beliefs are only mirage and illusion—is it not certain also that the social structure of Norway in the fjord region would be profoundly modified? The austere life led by these peasants, in the inexpressible isolation of their "gaard," would appear to them intolerable the day their religious doctrines were abandoned."[9] The first two of these affirmations fit very naturally, as one sees, into the deterministic frame of social science, but the third demands the insertion of the possibilities and exigencies of liberty. "Under the impulsion of new evidence," proclaims our author, "I acquire the power to abandon my first positions." Under the name of sociological materialism, he rejects alike the liberal economy, the scientific socialism of Marx, the sociologism of Durkheim, and social science itself. The material circumstances of place, of work, and of system of property, which constituted for his masters the three determining factors, appear to him only situations that arouse or conditions that permit the phenomena, not causes that necessarily produce and suffice to explain them. But what then becomes of social science? That is the question which arose and which he asked himself but which he did not succeed in answering in clear and satisfactory fashion: "According as I held it necessary

[9] *Introd. à la meth. Soc.*, p. 16f.

to assume liberty, was it not necessary to give up the idea of constituting a science of social phenomena?" He decided that this was not the case, saying especially that one must hold fast the two ends of the chain of determinism-liberty, even though unable to perceive the intermediate links.[10] In any case he claimed for representations, especially those of morality and religion, a causal efficacy analogous to that of scientific factors proper.

We may now note a significant fact which shows that we are nearing the crucial problem. Through the claim just mentioned Bureau rejoins that Durkheimian sociology in which he wishes to see only a materialistic determinism. Even before the appearance of Durkheim's book on religion, which certainly marks this author's evolution toward idealism, I pointed out how the ideal factors (beliefs and representations) join in his thought with the material factors (morphology and institutions) to constitute the notion of collective reality and to explain human progress. And with a Bouglé, for example, sociological orientation tends to take this specific form. It is not by chance that in the Durkheimian heritage, he selects especially the notion of value—a conception that indeed acquires increasing importance—and that he devotes to the evolution of this notion a clear and brilliant little book which represents a balance-sheet of contemporary sociology.[11] Though appearing to us as objective and impersonal precisely because they are collective, judgments of value nevertheless express only preferences, that is, to say brusquely, sentiments. And if a common bent imposes on us values that it has created or has generally accepted, this is not by the tyranny of a law of servitude, but by the charm inherent in a superior ideal: "Its authority," writes Bouglé, "is far from being something exterior to spiritual life, which could only command offensively; it springs from the heart of the peo-

[10] *Loc. cit.*, p. 149.
[11] *Leçons de sociologie sur l'évolution des valeurs*, 1922.

ple. From which it follows that to invite man to respect society, is not to ask him to bow before a sort of huge animal, but before a great flame which mounts toward heaven and which is kept ever burning by souls united in common interest."[12]

The analysis of economic value, moreover, seems to show us, despite classic prejudices, that it is itself a function of desire and of idea: "To measure (economic) values it is not sufficient to compute the work embodied in them. Neither does it suffice to represent them as the result of a relation between two almost mechanical forces: supply and demand. In its functioning, the law of supply and demand itself assumes a certain condition which marks the limits imposed by the moral ideal on economic appetites. There are, moreover, other needs than material needs, other interests than individual interests; by diverse systems of attractions and influences, and in directions unexpected by the economist, collectivity orientates the desires of individuals. In so far one may contend that economic values are themselves matters of opinion, it being well understood that the opinion of which one speaks is not at all anything that can be avoided or an arbitrary fantasy. It is the sum total of ideas and feelings which in a given country and time impress themselves upon collective customs, and give rise to judgments of imperative values, representing ideals that are themselves in harmony with the structure of society. Values thus conceived are the essential objects of sociology."[13]

The same viewpoint is emphasized still more by Bouglé in a course of lectures on, or rather against, materialism in sociology.[14] Durkheim's sociology, he shows, contains more psychology than is generally supposed. Despite interpretations which try to reveal other tendencies, the true

[12] *Loc. cit.*, p. 36.
[13] Bouglé, *loc. cit.*, p. 110f.
[14] *Science, morale et education*, Paris, 1925, 3e série, p. 141f.

social reality is for Durkheim mental and sentimental. He does not make the collective consciousness dependent upon social morphology alone; and he admits a logic of development of beliefs. And Bouglé adds on his own account: "In order that societies may continue to exist, judgments of value must be imposed on the consciences of individuals to the end that their efforts may be made to converge. Societies would doubtless crumble into dust if there were nothing but material interests to unite men. But forces of sentiment are always at work. It is they that constitute the veritable substance of society. . . . If it be true that such is the tendency of our sociological teaching, I believe that we can all say that we are far from racial determinism, from geographical determinism, and from economic determinism. We maintain that an ideal is a necessary force. We maintain that this force itself is subject to the influence of social transformations. But especially do we point out that it is necessary to the maintenance of the life of societies." The same sort of idealism pervades the sociological conception of law which I have myself more than once sketched when criticizing the principal theoretical conceptions of contemporary jurists.[15]

Certain sociologists have attached an extraordinary importance to an exclusively psychological analysis of collective mentality with its unique characteristics and laws. They indeed do not cease to claim an absolute specificity of this analysis in relation to that of pure individual psychology, yet they consider it necessary to present the collective mentality in its entirety, and disengaged from correspondences of detail among its various traits and the particular or local causes of its formation in definite social organizations. This is the plan of two universally known books in which Levy-Bruhl achieves the veritable resurrection of the collective mentality of primitive man, full of life

[15] G. Davy, *Le Droit, l'Idéalism, et l'Experience*, Paris, Alcan, 1922; *Eléments de sociologie politique*, Paris, Delafranc, 1923.

and local color.[16] It is the most recent of the books of which we would here speak. It carries as its title a singular expression, *la mentalite primitive,* thus symbolizing the psychic identity found among regional and racial diversities. That primitive mentality is governed by a law of participation rather than of contradiction, and thus confuses classes and beings as it confounds actions and causes; that it is mystic, impenetrable to experience, indifferent to apparent causes that it believes ineffective, confident only in invisible causes, magico-mystic in character; in a word, that it is pre-logical and pre-scientific—this is all matter that it is scarcely necessary to repeat, so well known is Levy-Bruhl's book, and so often re-edited and translated. Its contents, moreover, have recently been popularized by a pamphlet from the pen of a psychologist who is himself interested in sociology, M. Blondel.

M. Faucounet's essay on responsibility is much more orthodox in its Durkheimianism.[17] It presents responsibility as an objective institution. It indeed contends that responsibility cannot be deduced, as is ordinarily believed, either from the requirements of a metaphysics which exhibits the free individual, or from those of morality which present him as a being full of failings before the bar of his conscience. Nevertheless it shows that responsibility expresses an imperious and entirely ideal need of the collective consciousness. All offenses against the values which the collective consciousness holds dear must be immediately effaced and compensated by a reaction *sui generis.* This at first strikes blindly and vaguely whomever, whatever, and wherever it can, just to be striking; finally it corrects its aim, directing itself to a given point where there is at last discovered an individual declared to be the responsible cause of the evil. While it lends itself to interpretation

[16] *Les fonctions mentales dans les sociétés inférieures,* Paris, Alcan; *La mentalité primitive,* Paris, Alcan, 1923.

[17] *La responsabilite,* Paris, Alcan, 1921.

and comprehension at first only in its objective aspects, and outside of the domain that metaphysicians and psychologists explore, the need that there be responsibility, an effacement of crime, nevertheless remains a trait of primitive mentality, a phenomenon of the collective mind.

Should one not, in a sense, say the same of another need felt in common by so many archaic civilizations—the need to translate all their activity and solidarity, as well as their group antagonisms, into the form of a ritualistic exchange of loans and gifts? With our custom of free gifts this has nothing in common except the name. For according to the ancient custom it is as obligatory to receive as to give; and an act of return must be with ceremony and with the desire to outdo and to overwhelm. This curious juristic-economic-ritualistic custom, comprising almost the whole group of traits found in the social life of societies at the totemic stage of evolution, where the potlatch is one of the most characteristic manifestations, has during these last years opened an entirely new and a fertile field of sociological investigation.[18] The conclusion of M. Mauss' study, referred to in the footnote, brings out the significance and the multiple importance of this kind of studies. They clarify on many matters far removed from the origins of law on which they cast immediate light. In these institutions, still entirely objective, it is indeed the psychology of the human living group in its concrete fullness that is presented to us. Let us turn to M. Mauss' own words. Though doubtless a little long, the citation is too important and too characteristic of this new point of view either to omit or to abridge. "We have, then, more than themes, more than the elements of institutions, more than complex institutions, more even than systems of institutions, differ-

[18] *Cf.* Mauss, *Année Sociologique*, Vols. XI and XIIff; and, in the first number which has just appeared (1925) of the new series of *l'Année sociologique*, an important study on the gift, an archaic form of exchange. See also Georges Davy, *La Foi Furée*, Paris, Alcan, 1922; and Lenoir, *Sur le Potlatch*, *Revue Philosophique*, 1924.

entiated, for example, into religion, law, economics, etc. . . . we have entireties, whole social systems whose functionings we have tried to describe. We have seen societies in the dynamic state of physiology. We have not studied them as if they were fixed in a static state or as if they were dead, and even less have we decomposed and dissected them into rules of law, into myths, into values, and into prices. It is in considering the thing as a whole that we have been able to perceive that which is essential, the movement of the whole, the living aspect, the fugitive moment when society or men acquire an affective consciousness of themselves and of their situation face to face with one another. This concrete observation of social life affords means of finding new facts which we are now only beginning to see faintly. Nothing, in our opinion, is more urgent or more fruitful than this study of social facts as a whole. It has a double advantage. There is first an advantage of generality: the facts of general functioning have the possibility of being more universal than the diverse institutions or various phases of these institutions, for the latter are always more or less accidentally tinged with local color. But above all there is the advantage of reality. One thus comes to see the social phenomena themselves, in the concrete, as they are. In societies one grasps more than ideas or rules, one grasps men, groups, and their actions. . . . Historians feel and rightly decry that sociologists are too abstract and that they are too prone to sunder the diverse elements of societies from one another. We must do as the former do, and observe what is given. But what is given is Rouen, Athens, the middle-class Frenchman, the Melanesian of such and such an island, and not prayer or law in itself. After having been a little too divisive and abstract, sociologists must force themselves to reconstruct the whole. Thus they will find fertile fields of study. They will also find means of satisfying the psycholo-

gists. These latter are keenly conscious of their privilege, and the psychopathologists especially have the certainty of studying the concrete. All study or should study the actions of beings as a whole and not divided into faculties. We must imitate them. The study of the concrete as a whole is possible, and is even more captivating and significant in sociology. We observe the complete and complex reactions of numerically defined quantities of men, of complete and complex human beings. We also describe the nature of their organisms and of their minds, while likewise portraying the actions of the mass and the psychoses which correspond thereto: feelings, ideas, volitions of the crowd or of organized societies and their sub-groups. We also watch bodies and the reactions of bodies, of which ideas and feelings are ordinarily the interpretations and more rarely the motives. The principle and the end of sociology is to view the group as a whole and its behavior as a totality."[19]

If it is thus among the complexities of collective life, among practices, usages and obligations included within it, that there first clearly appears the action of the individual in relation to himself and to others, and the feeling of value which he attributes to himself or which he makes others attribute to him, it is not surprising that sociology is more and more introducing its point of view and explanatory method into the domains of psychology and of law. Will it dissipate all the difficulties in these fields? Will it lead to an integral, scientific explanation by the radical elimination of that which is individual and contingent? Less and less would we dare to affirm it. And, in a chapter written more than ten years ago (in 1914; the book itself appeared much later) for Dumas' *Traité de psychologie*, a chapter for which I, not at all to my surprise, have been charged with intransigence, I already concluded with

[19] *Année sociologique*, new series, I, p. 181f.

this declaration, full, one will agree, of reserve: "Sociology shows psychology how the soul of society is reflected in that of the individual, how it there inscribes the rules of thought as well as of action, how it instills the sentiment of ideal values which make human life differ, by virtue of intellectuality and morality, from simple animal life where knowledge is based on experience. And now what original form does this feeling take in each individual consciousness, and in what unique manner does each individual exercise the superior faculties which social influences develop in him? This is a question which psychology must raise. Sociology gives it over to psychology, without denying in any way that there is such a question, but asking only that it be settled for the benefit of individual originality only after sociological explanation shall have been exhausted, and with the condition that sociological explanation be always permitted to function in reducing the part assigned to the individual."[20] Some attempts at sociological explanation in psychology may be found in several chapters of Dumas' *Traité,* chapters devoted to will and personality and written by the alert and colorful pen of M. Blondel; also in a recent book on memory, more than one thesis of which will awaken resistance, but which is full of substance.[21]

To set forth the position and the ambitions of the sociologist in the domain of law would require a special chapter. Let us note simply this question: May not the fundamental categories of private or of public law, of contract and sovereignty, for example, or the very notion of law in general, far from representing either the changeless principles of natural law, or artificial constructions as in the contractualism of J. J. Rousseau or the neo-contractualism of Léon Bourgeois, or organic products as in the evolutionism and organicism of Spencer, really represent progressive acqui-

[20] G. Dumas, *Traité de Psychologie,* II, p. 808f.
[21] M. Holbwachs, *Les cadres sociaux de la mémoire,* Paris, Alcan, 1921.

sitions of civilization, superior products and at the same time expressions of collective life and of society's work upon itself, work in which, moreover, one cannot see why the individual should not lend his collaboration, as when the reasoned art of codification comes to graft itself onto the spontaneity of custom? It is a fact that one obtains singular clarity concerning the origins and nature of juridical notions when one gives up the attempt to explain them as the image of reason or of human instinct in general, and considers them as objectively existing institutions that are formed, unformed, and transformed in the course of the history of societies and under the action of assignable causes. One can then seek to illumine by the light of history and of experience problems which have continued to remain after and in spite of much dialectical debate. This is what we have ourselves sought to do for the notion of contract and of obligation, and for that of sovereignty, as well as for that of the mutual relationship between national sovereignty and individual liberty on the one hand, and national sovereignty and international solidarity on the other.[22]

This brief review is not at all exhaustive. It has had as its especial purpose the characterization of several essential tendencies. To give an idea of contemporary sociological activity in France, some facts remain to be mentioned. We would refer, in the first place, to the reappearance of the *Année sociologique* in its two-fold form of a periodical with original studies and reviews and of a collection of works. The first number has just appeared with the important essay, already noted, by M. Mauss. The second number will follow shortly. In the collection of works there is announced an account by M. Granet, a student of Chinese sociology, of the dances and legends of

[22] Cf. G. Davy, *La foi jurée, etude sociologique du problemè du contrat* Paris, Alcan; *Elements de sociologie: sociologie politique;* Paris, Delafranc; also A. Moret et G. Davy, *Des claus aux Empires,* Paris, Renaissance du livre.

ancient China. The works, above mentioned, by M. Levy-Bruhl, by M. Halbwachs, and by myself form a part of the same collection. We must likewise refer to the assembling in book form of scattered articles by Durkheim and the publication of his unedited courses, of which we have no desire to present the work which is out-of-date but wish to exhibit the living spirit and the influence.[23] There must also be noted the publication of certain more or less unfinished works affording an impression of some promising sociologists lost during the war. In the foremost rank here is the very fine study by Robert Hertz on expiation and sin,[24] published, as were the unedited works of Durkheim, by the faithful efforts of M. Mauss. The *in memoriam* placed at the head of the first number of the new series of the *Année sociologique* will give an idea of all the unfinished work which was tragically interrupted and of which only a small part can be published. Besides the Durkheimian movement in the strict sense of the term the important collection which, under the general head *L'evolution de l'humanite,* and under the supervision of M. Berr, director of the *Revue de synthèse historique,* presents a history and an interpretation of the progress of civilization, and the Library of the Institute of Comparative Law of Lyons, an important collection of publications directed by Professor Lambert, give evidence of a sociological spirit in the large sense. The *Revue internationale de sociologie* continues to appear, as in the past, with a very friendly spirit; its enthusiasm for organization is continually waning, as is evident in the last book published by its director,

[23] Durkheim: *Sociologie et psychologie,* with a preface by C. Bouglé, Paris, Alcan, 1924. *Education et sociologie,* with an introduction by P. Fauconnet, Paris, Alcan, 1922. *L'Education morale,* with a note by P. Fauconnet, Paris, Alcan, 1925. Finally one will find in the *Revue de métaphysique et de morale* and in the *Revue philosophique* some of Durkheim's lectures extracted after his death from his courses on morality, on the family, and on the history of doctrines (socialism and Saint-Simonism).

[24] Robert Hertz, *Le peché et l'expiation dans les sociétés primitives;* taken in part from the *Revue de l'histoire des religions.* Paris, Leroux, 1922.

René Worms, who has just died.[25] We would call attention also to an important series of very suggestive articles published in recent years by M. R. Lenoir in the *Revue de Metaphysique et de Morale* and the *Revue de Synthèse Historique;* they relate to the history of positive ideas and to current sociological questions. Let us note in closing that sociology has won a place for itself not only among the public, even among non-specialists, but also in programs of instruction.[26] It has become obligatory in the programs of study for the *Licence* and the programs of primary normal schools, and even facultative matter for the Baccalauréat.

GEORGES DAVY.

DIJON, FRANCE.

[25] René Worms, *La sociologie, sa nature, son contenu, ses attaches.* Paris, Giard, 1926.

[26] Whence the appearance of manuals of sociology: Hesse and Gleyze (Paris, Alcan); Déat (Paris, Alcan); René Hubert (Paris, Delalain); Sourian (Paris, Nathan); G. Davy (Paris, Delagrave).

PEDAGOGICAL TENDENCIES[1]

IT is difficult to characterize in general terms the pedagogical tendencies current among French-speaking peoples within recent years, for this movement is notably different in France from what it is in French Switzerland and in Belgium.

France, in truth, appears to be much more conservative and traditionalistic than her small neighbors. She fears innovations in the domain of pedagogy. Her entire school system, strongly centralized, lends itself but poorly to experimentation, and her educational problem appears to be dominated by considerations of politics. It is in their political bearings, unfortunately, that she still envisages most of the pedagogical questions, such, for example, as the question of the "école unique" (single type school), with reference to which Switzerland has long since reached an affirmative decision.

In France, ecclesiastical considerations likewise factor in obscuring and complicating a number of the pedagogical issues. Whereas, in Switzerland, the principle of the lay school is admitted by all and no one would venture to question it, in France, lay teaching is still an object of lively attack from the side of the parties of the right.[2]

Meanwhile, the war has aroused in France a renewed interest in pedagogy. The moment the war closed there appeared a work written by a number of combatants who assumed the name, "Les Compagnons."[3] They demand

[1] Translated from the French by Edward L. Schaub.
[2] Bouglé: *l'Educateur laique*, Paris, 1921.
[3] Les Compagnons: *l'Université nouvelle*, Paris, 1918.

that educational institutions shall create a new spirit. They hope that France may witness a reversal in the order of values, as a result of which politics will pass to the second place and education to the first. "It is the individual Frenchman who must be reformed. It is his inner being, his course of life and morals, that must be changed. One must penetrate to the depths of his heart. . . . For this reason we turn to childhood. It is in the child that we place our faith." The authors from whom we have just quoted develop a complete program for all the stages of education; they seek a genuine systematization of the teaching personnel.

As early as 1916 M. Herriot proclaimed the necessity of rejuvenating the educational system, "of modifying it along lines at once more democratic and more conformable to the needs of France."

A considerable body of writers and of works have struck the same note. M. Ferd. Buisson and Mme. Kergomard, the deans of French pedagogy, insist on the "new duties" which actual events impose on the educator. More especially, they insist, one must show the children the benefits of the League of Nations. C. Bouglé shows that democracy requires of citizens the development of their reason to the end that they may be able to control the acts of those whom they elect to office. Melle. M. Dugard (*La culture et la vie, problèmes de demain,* 1918) holds that "what is most lacking in the contemporary world is men capable of improving the social structure"; "in its eagerness for the mastery of things mankind neglects certain essential values." It is necessary above all, she contends, that "studies shall be made to serve the ends of culture"; egoism must be uprooted, love of justice implanted.

Most of these proposals, however, are not novel. But one hears them proclaimed with more force than ever. Yet up to the present they have all remained mere words; they

have not yet passed to the sphere of action. *Agir!* Such is the title of a work by M. Herriot.[4]

In Belgium, on the other hand, under the influence of the movement inaugurated by Dr. Decroly, and in French Switzerland, thanks to the influence exercised by the *Institut J. J. Rousseau* (a school of educational science founded in 1912), the pedagogical spirit may almost be said to have been made over, and many improvements have come in educational practice.

But we cannot here enter upon the details of school questions. It is our task to indicate some of the more important publications of recent years in the fields of pedagogy and of child psychology.

General Pedagogy

A new and important pedagogical outlook is developed in the posthumous works of Durkheim. This writer connected pedagogy with his social theory. For him education is primarily a social matter. Indeed, the ideal to which it is subordinate and the end to which it should set itself vary with each society and depend upon the social structure. "Education is a socialization of the young generation." Morality and language are essentially social in character. Education must develop the will in such wise that the individual will subordinate himself to the exigencies of the group. According to Durkheim, therefore, if one would impart to the child the rudiments of morality, one must inculcate in him "the spirit of discipline" and arouse in him "an attachment to social groups." The ob-

[4] We would cite also the work of J. Wilbois, *La nouvelle éducation française* (Paris, 1922), which suggests a complete reformation of methods and programs. This reformation, Wilbois believes, should be founded upon the science of the child; that is, upon pedagogical experimentation.

jective of school discipline is to develop morality within the class. Its function is "to serve as a stepping-stone from the emotional morality of the family to the more severe morality of civil life." Thus, discipline is not merely a simple process designed to maintain order in the classroom. Furthermore, obedience is truly moral only if it expresses an inner sentiment of respect for the rule imposed. And this rule, in turn, is truly a rule only if it appears to the child as impersonal, as not dependent upon the good pleasure of the teacher. Respect for discipline, then, ought not to be aroused through fear of the teacher himself; the latter must develop in the mind of the child respect for the rule which he himself reverences.

It is the role of the school to awaken that social loyalty for which there is so dire a need, especially among the French who are inclined to rebel against the group spirit. The milieu of the school, as well as certain studies, notably history, are particularly adapted to engender in children interest in a social group at once wider and more impersonal than that to which they have previously been accustomed.

As thus appears, the pedagogy of Durkheim is derived from his sociological conceptions. Once these are admitted, one must recognize that the pedagogical edifice which he has erected is not lacking in magnificence. Nevertheless one cannot fail to see that many of his theories are quite artificial. In his entire work rhetoric too often assumes the place which ought to be occupied by observation and experience. The facts regarding the social and moral development of the child are still very obscure; Durkheim writes as if they were all definitely known.

Without doubt the social environment exercises a considerable influence on the development of the child, as well as on the formation of the moral ideas which serve as social norms. But does it follow that in educating a child one

must subordinate him to the ends set by the group? Not at all, for to act morally is very often to act *against* the opinion of the group. And thus it is with entire justice that G. Belot says: "Between society and the self of reflective thought, the accord is neither immediate nor constant. Though the human animal is inferior to the social man, society is often less advanced than the rational man. So far is society from being by its nature creative of reason and of the ideal, that it constantly ranges tradition against the will for progress and against the intellectual conquests of the individual; it ranges intolerance against the free play of thought."[5]

J. Delvolvé, Professor at Montpellier, has also devoted some attention to moral education.[6] He has circulated a questionnaire relating to the moral character of school children. Up to the present, however, the results of this investigation have not been published. M. Delvolvé emphasizes the social factors of moral education in the schools. He develops a number of ideas on "educational technique" that are original but not always very clear. The technique to which he refers is of a rational character and must not be confused with educational practice. It has for its aim the justification and the interpretation of the latter. It is concerned with "the development of the child under the influences of education."

For a considerable period of years and with untiring patience, Adolphe Ferrière, of Geneva, Director of the International Bureau of New Schools, has kept adding to his publications in behalf of a reformation in our school systems under the inspiration of the methods practiced in the "new schools."[7] "Among the deep-lying causes of the

[5] From G. Belot's contribution to a co-operative volume, *Les problèmes pratiques de la pédagogie morale positive*, Paris.

[6] *La technique éducative*, Paris, 1922.

[7] Ad. Ferriere: *l'Ecole nouvelle et le bureau international des écoles nouvelles*, Lausanne, 1919; *l'Education dans la famille*, Neuchatel, 1921; *Transformons l'école*, Basel, 1920; *l'Autonomie des écoliers*, Neuchatel, 1921; *l'Ecole active*, Geneva, 1922.

war and of the prevailing marasmus," he says, "there is one that has perhaps hitherto not been sufficiently noticed. In all the countries of Europe, the school strives to train the child to passive obedience. It has done nothing to develop the critical spirit. It has never sought to promote co-operation. It is easy to see where this patient and long-continued training is bound to lead peoples." Ferrière therefore pleads for a school that shall teach the children initiative, self-mastery, and that shall develop the social sense. All of this is to be found in the "active school." The active school is a school based on needs, on interests. "To make the pupil act one must put him into such situations that he will experience a need for doing the thing that is expected of him."[8] Ferrière often insists on the bio-genetic law, and, along with Stanley Hall, he holds that educators ought to take it into more account.

M. Roger Cousinet, a school inspector in France, himself a notable advocate of the principles of the new education and of self-government, seeks to eliminate all constraint in matters of discipline and of instruction. The teacher, he believes, must efface himself as much as possible and thus allow the child to act freely. "He should give children the utmost liberty," says M. Cousinet, "no longer subjecting them to constraint of any sort or imposing upon them any manner of action, any specific mode of learning, or any definitely assigned things to learn. He should observe them. Placing the child in the environment of reality where he is altogether free to move under the surveillance of our attentive eyes, let us observe how he conducts himself, how he attacks this reality in order to make it his."[9]

In a work on *Pédagogie francaise* (1920), M. Paul Lapie, at the present time Rector of the University of Paris, maintains that an essential feature of this pedagogy

[8] Ed. Claparède: *Psychologie de l'école active, Interméd. des Educateurs,* Dec., 1923.

[9] *La pédagogie moderne,* l'Education, 1921.

is liberalism, that is to say, a tendency against authority and pressure. M. Ch. Chabot, Professor of Pedagogy in Lyon (recently deceased), seeks in a small book to vindicate "the right of the child" (Paris, 1922). For him it is the family which is and which ought to remain the natural environment of the child.

Ed. Claparède advocates "a school made to measure," that is to say, a school which takes account of individual differences. Ought one not to have for the diverse forms of mentality a respect at least equal to that one has for the different shapes of feet, when one gives to them shoes "made to measure?" [10]

In an amusing and spirited brochure, *Le pédagogue n'aime pas les enfants* (Lausanne, 1917), H. Roorda, Professor in Lausanne, ridicules "the absurdities of our methods of teaching." A Belgian, Jean Haesaert, vigorously criticizes the school as unadapted to present conditions.[11]

Melle. Hamaide has given an interesting exposition of the system of Dr. Decroly in Brussels;[12] and Em. Duvillard, of Geneva, has sketched the prevailing tendencies in primary education.[13]

One of the real tasks of moral education is to develop the international spirit and the spirit of solidarity. The Third International Congress of Moral Education held in Geneva in 1922 gave especial attention to these problems.[14] Much attention is at the present time being devoted also to the modification of the manuals of history and of reading books with a view to eliminating everything that might needlessly arouse hatred between nations.[15]

[10] Ed. Claparède: *l'Ecole sur mesure*, Lausanne, 1920.
[11] *Didactique mineure*, Brussels, 1924.
[12] *La méthode Decroly*, Neuchatel and Paris, 1922.
[13] *Les tendances actuelles de l'inseignement primaire*, Neuchatel and Paris, 1921.
[14] Investigations presented to this congress: *Education et Solidarité*, and *l'Esprit international et l'enseignement de l'histoire*, 2 vols., Neuchatel and Paris, 1923.
[15] Carnegie Foundation for Peace, *Enquete sur les livres scolaires d'après guerre*, Paris, 1923.

Child Psychology and Experimental Pedagogy

It is a singular fact that these disciplines are less cultivated in France, the country of Alfred Binet, the gifted originator of intelligence tests, than in Belgium and in French Switzerland. As a matter of fact, it is in Geneva that there was founded, in 1912, the *Institut J. J. Rousseau* which is especially devoted to researches in this field and endeavors to orient future educators in psychological and pedagogical methods. The director of this institute, Professor Pierre Bovet, published in 1917, an authoritative study of the fighting instinct. This study was based in part on an investigation which indicated that among most children from nine to twelve years of age fighting is a form of play, and that this play involves an instinct. But this fighting instinct is repressed by social life. It canalizes itself, or it assumes complications or deviations; it becomes sublimated, and Bovet has shown the role of education in the sublimation whereby moral virtues acquire the victory and the instinct is thus rendered harmless.

P. Bovet has also written a very striking essay on the nature and the genesis of the religious sentiment of the child. For Bovet it is neither sexual nor conjugal love, but filial love that is the prototype of divine love. This hypothesis rests on a mass of observations cited by the author.[16]

Ed. Claparède published, in 1916, a new edition of his *Psychologie de l'enfant*. Along with an exposition of psychological methods this book furnishes a glimpse of the mental development of the child. The author puts into prominence the phenomenon of play, modifying the theory

[16] P. Bovet: *l'Instinct combatif*, 1921 (also translated into English); *Le sentiment religieux chez l'enfant*, Neuchatel, 1925.

of K. Groos so as to take into account the facts of compensation and of origin, which, no less truly than the considerations advanced by Groos, come to expression in play. He defines the function of play in the following manner: "It is in satisfying present needs that play equips for the future." He maintains that the educator can find in play a valuable ally, for play is a liberator of energy; it is in play that the child gives himself in his entirety.

The *Institut Rousseau* has pursued various lines of investigation. A part of its activity has been devoted to the study of mental tests. We would cite here the works of Melle. Descoeudres, notably her book on *Developpement de l'enfant de deux à sept ans* (Neuchatel, 1921). This development the author has traced through the use of various tests. Melle. Descoeudres had, in 1916, published an admirable work on *l'Education des enfants anormaux*. M. Claparède has brought out a small volume presenting an introduction to the technique of tests, *Comment diagnostiquer les aptitudes chez les écoliers* (1924).

Among the most remarkable works coming from the *Institut Rousseau* belong the researches of Jean Piaget on the development of the intelligence of the child. Piaget has shown that the mind of the child differs from that of the adult not simply quantitatively but more especially qualitatively. The thought of the child is not like that of the adult. It resembles the incoherent thought of the dream. And Piaget contends that the thought of a child is intermediary between the "autism" and the logic of the adult. His works include also a mass of observations that should be read in the original.[17]

The *Institut Rousseau* created, in 1917, a bureau of vocational guidance, one of the first in Europe. One of its founders, J. Fontgène, published a work covering the

[17] J. Piaget: *Le langage et la pensée de l'enfant*, and *le jugement et le raisonnement chez l'enfant*, 2 vols., Neuchatel, 1923-24; *La pensée symbolique et la pensée de l'enfant*, in *Archiv de psychologie*, XVIII, 1923.

whole of this field and showing its importance for education. The most recent creation of this institute (1926) is the International Bureau of Education, which is to serve as a general clearing-house for all educational and psychological information and enquiries.

In Paris, the experimental tradition of Binet is carried on by an independent society for the study of the child. Subsequently to 1917 the organization has called itself *Société Alfred Binet*. Its animating spirits are Doctor Simon, the collaborator of Binet, and M. Vaney, the director of the primary school where Binet pursued his investigations. Simon has just inaugurated a series of books on experimental pedagogy by a work devoted to studies of writing, reading and spelling. Experimental pedagogy represents progress in pedagogical practice; but it ought not to be separated from such practice.

Another collection, *Bibliothèque du Psychologie de l'enfant et de Pédagogie*, has just been launched by the publisher Alcan. Its first two volumes are devoted, the one to *l'Imitation chez l'enfant* (by P. Guillaume, 1925) and the other to *Enfants turbulents* (by H. Wallon, 1925).

In Montpellier, Marcel Foucault has edited a manual entitled *Observations et expériences de Psychologie scolaire* (1923) and, in Brussels, T. Jonckheere has published a small book on *La pedagogie experimentale au jardin d'enfant* (1924). These works are designed to encourage teachers to observe and to take note of the acts and the behavior of their pupils.

Let us add that the use of tests, hitherto much neglected in France, is in that country now beginning to have its experts. Among these we would mention M. Duthil of Nancy, and M. and Mme. Pieron of Paris. Publications by them may be found in *l'Annee pedagogique* for 1924.

ED. CLAPAREDE.

GENEVA, SWITZERLAND.

METAPSYCHICS AND PHILOSOPHY[1]

THERE has been considerable discussion concerning the term *metapsychics* on account of its prefix *meta* which suggests that it means *"after* the psychical" and that, too, in the derogatory sense of something beyond psychology, outside the pale of science. When Charles Richet invented this term—guided by analogy with the term "metaphysics"—his only intention was to give a name to the new science of the unknown forces of intelligence. It was to avoid premature judgment as to the nature of these forces that he chose a term which leaves to the future the task of replacing "meta" (beyond) with exact knowledge. In fruitless discussion of a term, we must not lose sight of the reality which the term designates. Let us understand by *metapsychics* the study of phenomena of human origin whose attributes go beyond those powers which the officially taught science of today ascribes to the human being. Let us understand that it is also the study of all such other supernormal phenomena, if such there be, as would be caused by forces of intelligence acting from another plane of life upon our own. This definition makes it clear that metapsychics sets itself the task of studying phenomena which are not as yet universally accepted as subject matter of science and, thereby, of bringing them within the field of science.

The special atmosphere in which this branch of science came to birth still keeps it in the anomalous position of

[1] Translated from the French by Nina Winans.

having the very actuality of the phenomena it studies contested. If one were to inquire today of the greater number of scientists whether there is such a thing as a science of metapsychics, there is no doubt in my mind but that the reply would be in the negative. In the fields of chemistry, of physics, of biology, one would, ordinarily, carefully refrain from uttering an opinion about the existence of any phenomenon produced by the mere exercise of the mind. As regards the metapsychical, one abandons reasonable logic with scarcely any hesitation; one is ready to believe in his right to judge without taking the trouble to observe the facts of nature—it is a sentiment which decides. A question of fact is transformed into a matter of belief.

This unusual situation in metapsychics is due to two causes which I point out without dwelling upon them: first, *its subject-matter,* which runs the gamut of the unusual and almost miraculous aspects of the human psycho-dynamism in paranormal operation; secondly, *the intellectual attitude of most of its investigators* who introduce elements of the mystical and fantastic into the study of phenomena, thereby removing them from the field of strict observation and of methodically carried-out experiment.

It would be unprofitable to undertake here to convince the reader of the actuality of the contested phenomena. I shall content myself with the assertion that during the short era of the *scientific* cultivation of metapsychics, all savants who have been willing to base their judgment of them upon personal experience have become as certain of the actuality of metapsychical facts as of the phenomena within their own special fields of science. During the sixteen years of my strictly experimental study of man's power of supernormal knowledge, I have put certain scientific persons in a position to verify this power through their own personal observation; up to the present time there has not been a single one of them who did not finally conclude

by asking: "How can it be that phenomena, which so frequently occur, which are so readily verifiable, and which are of so great scientific import, have not long since been investigated in the psychological laboratories with a view to their explanation?" The science of metapsychics, like any other science, should be estimated by observation of the facts. To remain in the midst of the conflict of beliefs—scientific, philosophical, religious, etc.—in the face of the special manifestations of the human psycho-dynamism, which are producible and verifiable at will, is not to make a proper use of one's reason.

What are the phenomena which constitute the subject-matter of metapsychics? There is a tendency to distinguish two types of phenomena: the *subjective* and the *objective,* according to some students, or the *psychological* and the *physical,* according to others. Inasmuch as all metapsychical phenomena are at once subjective, objective, psychological and physical, this distinction is without adequate foundation. It is more reasonable to distinguish two groups of phenomena: those having to do with *the capacity of supernormal knowledge,* and others having to do with *the human being's paranormal control over matter* (telekinesis, teleplasty). It should be understood that the supernormal is not to be—as it sometimes is—confused with the supernatural, but that it is qualitatively superior to the normal: the exceptional ranking in value above the usual.

To speak of a *scientific* study of these phenomena is to have in mind the setting up of experiments which, so far as possible, vary their conditions, psychological, physiological and physical. Scientific study requires that the phenomena under investigation be such as can be produced and repeated again and again. This requirement is met by the fact that there are persons, more or less numerous, who permanently possess the power to produce the several

classes of phenomena. Very rare are those who exhibit the paranormal control over matter. Very common, however, are the mythomanes or the impostors who imitate them. In France, it has been the case, by a sort of fatality, that whenever at the instigation of metapsychists scientific persons have met to confirm the facts of supernormal human actions, they have been shown this class of phenomena—phenomena which are rare, but imitable and often fraudulent, and difficult to attest because of the conditions which surround their production. The balance of results pointing in this direction appears, in the opinion prevailing in the scientific world, to suggest that these phenomena are to be regarded as more probably feats of conjuring than of psycho-physiology. Hence, among the scientific elect, the lack of interest in a science whose field, and the importance of whose sound portion, they ignore.

While those who exhibit paranormal control over matter are rare, the subjects who are endowed with the powers of supernormal knowledge are numerous—numerous and very dissimilar as to the sorts of reality they are capable of perceiving. In general they display the power to apprehend distant realities under conditions where the best intelligence equipped with the best of senses would have known nothing, time and space not restricting their perception. In practice, however, the range of supernormal perception varies with different subjects, and this variation divides them into groups according to their special sensitivities—none of them detects all sorts of realities, but each is capable of perceiving only the one or the other, or perhaps several, from among the manifold sorts.

A very large number of them are limited to the detection of expanses of water or subterranean streams of water; only some of them are equally sensitive to veins of coal, of metals, of petroleum, subterranean caves, etc. Others, such as Bert Reese, Ossoviecki, Ludwig Kahn, dis-

close what is contained in a sealed box, what is written in a sealed envelope or what was written on paper that has been burned, etc. Others, touching an object, can reconstruct in thought its surroundings, the beings and things which at various times have formed the environment of the object. Others show a special faculty in the way of supernormal understanding of man, i. e., his individual traits—emotional, intellectual, bodily—and the general trend and episodes of his life.

I mention these specializations and there are many others. They are not the product of the subject's volition nor of his surroundings; they are determined by the crypt-aesthetic range of each subject.

All the special forms of supernormal knowledge have a bearing upon the study of a human being's capacity for knowledge transcending the known senses. But there is one form whose importance I cannot too much emphasize, viz., that in which the special object of supernormal knowledge is *man*. By his psychic organism, indeed, man is a being who intensely and widely influences the cryptaesthesic organism which is in harmony with his radiations. This is a field of research in which the psychologist can enter upon an experimental study of the intercommunication of minds and of the physical mechanism which underlies the amazing complexity of its manifestations.

How far has the science of metapsychics progressed? It has been in existence for about a century. But the real workers in the field are very few; and they have devoted to it not the principal part of their labors, but their leisure. All branches of science, in respect of their progress, are mutually dependent; the growth of the one furthers the development of the others. The metapsychists have not found in the classical psychology, and still less in the physiology and physics of their time, concepts which could serve for the explanation, even a superficial explanation, of the

observed phenomena. They have been, they still are, constrained, before advancing in the study of conditions which determine their phenomena, to make new contributions to psychology. Today they must bring about further progress in physics and physiology if they wish to end the era of a fruitless accumulation of facts continually recurring under the same conditions.

The small amount of time devoted to research and the difficulty of an unaided investigation, in an entirely new field, explain why the past century, as regards progress, has the appearance of a laborious beginning.

The accomplishment of the metapsychists has been twofold: they have classified their phenomena and they have begun, experimentally, an explanatory investigation into certain of these phenomena.

What, at the present time, is accomplished in the way of explaining the metapsychical? To give a fair idea of this within the limits of a few pages is a task from which I recoil. This young science already offers a wealth of newly acquired knowledge. A partial account would put it in a false light. Since, after all, I have been requested to present in this article the point of view of French metapsychics, I prefer simply to tell the reader who seeks an introduction to the subject, that useful sources of information may be found in three books, recently published, which represent—so far as France is concerned—the scope of the cleared ground. I cite these books in the order of their publication, apologizing for the inclusion of one of my own works: *Traité de Metapsychique*,[2] by Charles Richet: a survey of the historical development of metapsychical science down to 1921; a presentation and classification of the phenomena; *La connaissance supranormale*,[3] by Dr. E.

[2] Paris, Alcan, 1922; Eng. trans.: *Thirty Years of Psychical Research*, New York, The Macmillan Co.

[3] Paris, Alcan, 1923; Eng. trans.: *Supernormal Faculties in Man*, London, Methuen & Co., New York, Dutton & Co.

Osty: an experimental study of the power of supernormal knowledge in cases where the object of this knowledge is man: *Ectoplasmie et clairvoyance,*[4] by Dr. G. Geley: an account of experiments upon man's supernormal control over matter, and of experiments on supernormal knowledge.

Inasmuch as my words are intended for philosophical readers, I make haste to indicate how philosophy will be affected by metapsychics when this science shall have attained to the universal recognition which cannot be long delayed. The best way of doing this briefly will be, I think, to show how far certain metapsychical phenomena, selected from among those readily verifiable, *extend* the human being beyond the confines to which he is limited by the classical psychology, i. e., by the psychology that is taught officially. With this end in view, I shall consider that aspect of the rich phenomenology of supernormal knowledge which is most enlightening: viz., that in which the object of supernormal apprehension is man. And to simplify matters, I shall select three types of phenomena, endeavoring through them to convey some notion of what philosophers may expect from this new branch of science.

One of these phenomena is fundamental in the "supernormal knowledge ("metagnomie") of a human object":[5] *the transference of thought from mind to mind.* Theoretically, it is this phenomenon whose possibility is most easily admitted since the discovery of electro-magnetic rays and of radium. One readily compares the unknown dynamic power of thought with this known radiation; and one admits an analogy between the influence of one brain upon another brain and the influence of a source of radiation upon a receiving apparatus. Nevertheless, if one's curios-

[4] Paris, Alcan, 1924. Eng. trans. in preparation.

[5] "Metagnomie" (from *μετα, beyond,* and *γνώμη, knowledge*) is a term originated by E. Boirac to denote the power of cognizing a reality which lies beyond the range of cognition under so-called normal conditions.

ity impels him to investigate the extent of experimental knowledge of the subject, he will discover that the most reputable treatises on psychology regard this phenomenon as non-existent inasmuch as they say nothing of it, and that the periodicals of psychology and of related sciences mention it very rarely and then as an exceptional, and even an uncertain, phenomenon.

Now the transmission of thought from one psychic organism to another can be brought about very easily and in a remarkable number of cases when one works with subjects who are gifted with the power of revealing personal characteristics, presenting to them in succession different personalities selected at random. Two psychic organisms are then joined functionally, so to speak, through their subconscious minds without the participation of the so-called conscious levels of thought. When the psychic couple has been established in a sufficiently close harmony, as frequently happens, the co-operation of mind with mind is brought to its full realization and the result shows itself in "metagnomic" (supernormal) information about the personality "given objectively."

When, knowing how to produce at will this direct communication of thought between two psychic organisms, one would push one's inquiry further and investigate the process involved in this subconscious co-operation between minds and the range of its possibilities, one soon recognizes that one is dealing here not with a "reading of thought" on the part of the percipient and a "mental suggestion" on the part of the perceived, but with an *active* co-operation in which each of the two psychic organisms plays a part, with the result that there is transferred into the conscious mental representation of the metagnomic subject the knowledge which exists potentially, actually, or in memory, in the person who is the object of this supernormal knowledge ("metagnomie").

If by well-devised experiments one carries one's investigation further into the conditions under which such functional union between psychic organisms occurs, one finds that this intermental co-operation, so readily called forth when detector and detected are in the presence of each other, also occurs, though with less effect, regardless of the distance by which they are separated. It is to experimentation along this line that one may look for the explanation of the cases of spontaneous telepathy so frequently reported.

There is sufficient experimental evidence to establish the fact that this intermental co-operation between two psychic organisms, in contact with or at a distance from one another, can extend itself to a larger number of psychic organisms. In subconscious collaboration, a group of persons is capable of elaborating knowledge and ideas which are not the product of any single one of the group but of all. What happens is as if a sort of collective psychic organism with a momentary purpose suddenly precipitated itself. Ignorance of this psychological possibility has led practitioners of spiritism to believe that they were in communication with a more than human intellect when through automatic writing, ouija, table-rapping, etc., there is obtained information not traceable to any single individual present.

So far has experimentation investigated the *spatial* extension of the human psychic organism in intermental relations. When it essays the investigation of the *temporal* extension, it brings the investigator into the presence of a dizzy spectacle. For here is what it shows.

The collaboration of minds at a distance from each other is most frequently obtained by putting into the hands of a "metagnomic" subject an object owned or touched by a distant person. If, however, instead of giving the subject an object belonging to a person distant in space, one gives him

an object which belonged to a person distant in time—i. e., a person who has been dead for a longer or shorter time—one elicits in the "metagnomic" subject knowledge of the life, or of episodes in the life, of that departed individual.

Obviously I am speaking only of well authenticated cases in which no living psychic organism, however remote in space, could through any possible intermental communication, be the source of the subject's information. I am speaking only of the case where no living person knows or can know the nature of the subject's "metagnomic" revelations.

Thus, facts which can be indefinitely multiplied, by pure experimentation, yield the certainty that *man leaves behind him after his death in some place, other than in the mind of the living, the story of his life.*

Does, then, the "metagnomic" subject derive information from the dead, through an intermental co-operation, in the same way that he might obtain it from the living? Does he, by a momentary participation in a universal inclusive psychic organism discover the story of a life? Or does he obtain the information elsewhere, and where? And in any case, how? Thus there is presented to experimental research, with every hope that it will eventuate in substantial explanations, in certainties, the problem of man's fundamental nature and destiny which humanity, ever since it has been capable of so much thinking, has vainly sought to solve by purely subjective reflections.

And now let us consider that other phenomenon, the culminating manifestation of human thought, the actuality of which my sixteen years of practical investigations enable me to assert without fear that I shall ever be found in error: *The foreknowledge of the future of the human individual.* Conclusions regarding this subject may be summed up as follows: the metagnomic subject's power of supernormal knowledge of a living human personality is

not confined to the already actualized portion of his life; it knows *his future.*

This is effected through collaboration between the mind of a subject and the mind of the person in question.

What results is as if each of us possessed a latent level of thought which knows his own future, whence the metagnomic subjects derive their information through a co-operation, active on both sides, of mind with mind.

This bimental functioning is not possible to all psychic couples. The production of pure premonition seems, to all appearances, to depend upon the subject's sensitiveness being in accord with the special constitution of the psychic plane which furnishes the transcendental knowledge.

I shall not dwell upon the transformation of human knowledge which may result from future work which shall make known the factors that underlie so remarkable a phenomenon. I merely ask philosophers to contemplate the revolution in our conceptions of man, of life, of the universe, which will ensue when official science simply accepts "foreknowledge of the future of the human individual."

To give a clear, indisputable, conclusive proof of the actuality of this phenomenon will make it certain that *knowledge precedes in time the reality known,* and therefore that there is good reason to abandon the belief that matter is the creator of thought.

To prove that it is *through the co-operation of mind with mind that the metagnomic subject is informed of our individual futures,* is at the same time to show that the transcendence of consciousness which that phenomenon everywhere discloses is not, in each of us, the product of the brain alone, an organ whose mechanism could not react to future vibrations of things not yet actual.

Philosophy is primarily the persistent effort, progressing step by step with science, to explain life, and particularly that most reflective form of individual life: man.

About human nature are centered all the great problems called metaphysical and held to be insoluble experimentally: determinism, free will, materialism, spiritualism, deism, etc., with all of their corollaries.

To the extent to which science has pushed into the unknown, to that extent is metaphysics, which not long since was almost the whole of philosophy, reduced. Under the experimental constraint of metapsychics we shall see metaphysics shrink, perhaps disappear. A new world of the mind will be revealed to a humanity which today is incredulous, which tomorrow will be astonished and perplexed.

M. Bergson has turned to instinct for the secret of the relation between universal consciousness and the successive forms of matter. From this standpoint his genius has derived all that the position could yield: splendid speculations reared on slender and uncertain foundations.

If some day man succeeds in solving his own riddle and in assuring himself that there exists the infinite intelligence which we suppose is through its will directing all that is, it will be—I am certain—only by methodical study, progressive experimental investigation of the supreme manifestations of thought: those manifestations in which the human individual is observed extending himself in space and time to other thinking individuals, and, perhaps, becoming one with them in a universal psychic organism.

DR. EUGENE OSTY.

PARIS, FRANCE.

IN THE EYES OF YOUTH

IT IS one of the charms of the profession of the college teacher that he is in daily contact with the freshness and beauty of youth. The completion of the second decade of our human life is a period filled with splendid anticipation and swift adventure and with a vital experimentation in things humane that is characteristic of no other period. Physically the form of maturity is attained, and the fullness of that image in which men have dreamed and fashioned their gods; and although the body is as yet smooth and the flesh unengraved with the symbols of the developed character, there is still a subtlety and zest in the very richness of the promises with which quick emotions and facile thoughts overwrite the clear countenance. It is the period when the young man is trying out his muscles, the maiden her charms, and the vital saps are at flood. In the cheek there is the flush of health; the eye gleams with curiosity and eager intelligence; and in every play of sympathetic expression there is transparent a flow of fantasy. For the teacher with twenty or thirty such youths before him, all caught in the glow of a new wonder, there is exhilaration and there is rejuvenation: the Councils of Olympus offer no nobler spectacle; he drinks at the Fountain of Youth.

If your bookish sort of man be asked into what golden morning of things human he would soonest walk, he will answer—so the chance falls—with those eager Periclean boys making a festival of learning nigh to Socrates, or again in the Florence of guilds and pomps, with silvery-tongued Lauras and Beatrices, with Sandros and Raffael-

los blazoning the city with immortal images. And yet, I here in Nebraska, caught in the jaws of mechanical modernity, have many a classroom moment when I question me if youth can ever have been more beautiful with life than here and now, and whether indeed we may not unsuspectingly be upon the brink of a Renaissance as flown with joy as any in the past. When I see the bannerets in their eyes, when the voices of their thought fall like cymbals sounding the onslaught and I know that as one they are assailing the citadels of hope, then I can believe them capable of everything fair and fine—these students of mine, who are receiving the future into their hands. The Re-birth is come, I say; blessed be the profession bequeathed of Socrates.

To be sure, as with every birth, the moment is one of peril. After the hard, drab winter of the cocoon the butterfly must poise for a time, preening and testing his wings, before he can give himself to the glory of the first sun-glinting flight. That moment of the preening wings is fraught with deadly peril; the new life is utterly helpless before every foe, captive to every chance; and between creation and destruction lies no more than a breath of wind. Men's lives are like that in the first twenties, and men's civilizations in those times when the forms that have housed their pasts are breaking.

But there is another kind of moment, sitting in the classroom before these same youths. It comes imperceptibly, like an inadvertent shift of focus, and it changes the entire aspect harshly and strangely. I have sometimes amused myself, beside a rill or a pool, with the involuntary fashion in which the eye is caught first by the rippling reflections of the surface waters, then by the pebbled mosaic of the bed beneath—first superficial dazzle, then a fragment of clear penetration, then dazzle again. In our relations with one another perception varies in a similar fashion, depth and surface changingly.

Sometimes I think it is from them, sometimes from myself that the change comes. At all events, where the moment before I had looked into responsive intelligent faces, and beyond the faces into brimful human minds, now, of a sudden, I find myself aware of a kind of grotesquely repeated design. The faces fade into irregular ovals, patterned with a geometrical regularity in the space before me, and on each oval the features assume the character of subordinate elements of design: repeated pairs of eyes, enlarged and spot-like, mouths transformed into over-emphasized lines —something, indeed, very simple, yet uncomfortably recognizable as the hieroglyph of the human countenance. The bony structure becomes prominent, and what one sees in skulls is made unpremeditatedly present in these faces. It is as if one were introduced into a congregation of mummied men, to hold converse with dead forms.

It is in moments such as this that I am led to question most earnestly what it is that constitutes human beauty. The skull which gives the foundation of our features men unitedly describe as grinning and grisly, a thing to be put out of sight and thought. It is true that it has been used by some peoples—mainly primitives—as a motive of decorative art; but it is always in that domain of art which we term the grotesque. And if one pause to reflect, everywhere in the grotesque appear forms of the human face—eyes and mouths, mouths and eyes in unthinkable variation employed to excite the ribaldries of mankind. If the features of man are by nature noble why do they so readily lend themselves to forms terrifying or humiliatingly amusing? What, indeed, would be the verdict, on this issue, of star-form beings from another planet sent hither to survey terrestrial types? or of intricate angels descended from a fourth dimension, judging our simpler measures? Even within our own range there are certain analogies that suggest our unconscious self-disparagement. "Du bist wie

eine blume,"—when we liken the maiden to a flower are we not confessing her relative imperfection? And I have sometimes wondered whether the forms which we find repulsive and monstrous, the geometrical spider, the sinuous serpent, might not win unexpected awards from stellar juries.

We are tolerably familiar with the human form (though far less intimately so than our cavalier moments assume), and we take it for granted that we understand the nature of which this form is the living expression. Does not this fact explain our self-approbation? Are not familiarity and understanding the real core of our acclamation of human beauty? The gods of the Thracians are blue-eyed and red-haired; those of the Ethiopians snub-nosed and swart; Australian Blackfellows ridicule the hatchet faces of Caucasians, and African Negroes paint the devil white. These are clues to the sources of our admirations; they may be also partial explanations of that oddity in our disposition which causes us to mask our goblins and bogies with the features of men.

As one walks down a city street, it is shocking what consistency of ugliness one encounters. It is not merely that the activities of men and the abodes which circumscribe these activities are ugly: material life has this cast to it, and we can accept it, as necessary. It is not merely that the men and women themselves parade misshappenness, and exaggerate it with the clown's padding and fool's motley of our clothes. But most of all the shock comes—if one is alert to it—from their human faces. They seem to rejoice in affronting one with every variety of disproportion: beetle brows, owl eyes, falcon noses, bull-dog jaws—for our very terms of description we are driven to all the types of animal grotesqueness; and beyond these there is the whole range of the distortions found in man alone which makes the art of the cartoonist easy. I have wondered

somewhiles at the odd zest shown by men of so many races and times for transfixing in masks the leers and grimaces, snarls and guffaws, which characterize our unloveliest moments; and at the same time I recall bits of archaeological treasure-trove which are uncertainly described as being perhaps humorous in intent, or perhaps as meant to be portrait images: so near are we by nature to a born laughingstock. The image of God? Walk down your city street and you will encounter in passing the bizarre deities of all pantheons.

Nor is the spectacle helped by the enchantments of distance. From the crest of the Woolworth the New York streets are for all the world like the trails of an insect colony, motor and street cars moving along like parades of beetles and men like streams of skurrying ants threading to and fro their beaten paths and tortuous tunnels. The metropolis itself is no better than an ant nest, as mechanical and as meaningless. Indeed, the effect of the elevator in a skyscraper is precisely what Alice encountered in Wonderland, with her unexpected fluctuations of dimension—save only that Alice beheld her world with the more unprejudiced eyes. For we, being human, magnify the works of man, and in some inverted way get the notion that in them are to be found the values for which we live.

Not infrequently I find a brown-faced Oriental in the classroom before me; and I experience a kind of patriotic cringe as I reflect upon what must be the impressions on such a one of our Caucasian physiognomy, in person and in thing. I remember our own blank contempt for foreign types; our childish amusement over the unfamiliar mold of their visages; or again I recall the shudder of Europe when it first described the hideousness of the Huns. Against this is the Mongol's detestation of the cruel gray eye of the blond man, or the Chinaman's nausea at the smell of him. There is some grim handicap which our humanity suffers

in the mere fact of its physical presentation; and when I have reached this stage in my reflections I become very humble before my classroom, and very grateful that in the generosity of their souls these boys and girls can endure to sit face to face for an hour's stretch with such an object as myself.

I am back in my classroom with a new angle to my problem. Here they are before me—beautiful human youths, and yet with a questionable, relative beauty. Is it their smooth faces and fresh color that makes them fair? The pretty girl yonder, who is face-conscious, ceases by that very fact to be pretty; and I recall my own uneasy sense of the futility of the work of that ever-present school of color-dabblers who give us only the surface charms of youth upon their canvases and call their productions art—how curiously empty it is as compared with the achievements of genuine portraitists, whose delight—did you ever think of it?—is in the features of maturity. No, it is not in their physical bloom that the beauty of my youths lies; nor, I believe, is it even in their moment of life, full of romance and love-making, of generosity, friendliness, clean ambition, high spirits, although all of these are admirable. Rather it is in something subtler and deeper, more intimately and lastingly humane, of which the hour of youth is but the promise of embodiment.

Metaphysically (and that is, as I understand, actually) the quality which makes youth so splendidly appealing is that it is the age when for the first time we look open-eyed at life—in its full form and dimension and bearing. The greater portion of our earlier years is taken up with acquiring familiarity with our mode of incarnation. The infant awakening into the world is a bundle of appetites, mainly discarnate and unrelated. Then comes the enchanting hour of discovery: these toes, actually mine! wriggling when I will!—this detachable tooth, which I prove mine by the cav-

ity and cherish as a pocket charm—hair that tangles and curls and cowlicks and pulls, mine, too. "Oh, mother," cried a little one of six summers, "such a wonderful dream! I dreamed that I had a beautiful face!" Throughout the growing years the bodily education continues, for there is enough to learn, what with remindful aches, and new inches, and weights, and sizes of garments to be remembered. The boy is everlastingly feeling his muscles and comparing them and trying them out, and the girl is full of the fantasies of doll-clothes; and what with running and riding and sports and frolics the years are one continuous flare of bodily initiation. But when one is grown up, this physical preoccupation begins to fade, and the eyes are opened to new realms of conquest.

The young man and the young woman are still full of the lust and vigor of the body, but it is now become an instrumental thing, not a self-engrossment. Its powers are an agency through which are to be accomplished whatever of those myriad emprizes, of which youth dreams itself hero, fate shall make real; and the hour is one of vivid selection, not yet of the career in the making, but of choice of career. Youth is so full of possibility! That is its beauty, that its truth. It is as if during childhood one had gone carefree and helter-skelter through a garden in which no path were a lost path; and now, suddenly, at the gate of maturity, were disclosed the multiform routings of one's lifetime; and one of these must be chosen. No such decisions are to be made again: marriage, profession, habitation, beliefs even—all of these are being determined, and the fashion of a life is being forecast. Youth is rich, rich, not for its fair physique, but for its superb chances.

Often I realize this, as I sit in my classroom and look into their eyes. Shall I command or plead? Shall I show them the way or give them over to chance fates? If my wisdom were but sufficient . . . yet who can pretend to

such wisdom, when the whole world is spread out before them? I shall ask them to open their eyes to the one vista that is mine; beyond that they are discoverers.

Of course, I know, and they know, in a general way what must be the pattern of their futures. Mortal possibilities are varied, but they are not limitless; and I suppose that it is this element of restriction which gives to the activities of maturity the character of work. Work implies restriction and self-denial, and a certain hard confinement of one's life within some pit of matter; work bends body and mind to the shapes of local enterprises, and work habituates body and mind to rigid little routines; the tailor's stoop, the smith's thews, the ploughboy's walk, the seaman's roll, are all but minor examples of those tyrannies of the taskmaster which are even more manifest in the malproportions which the lifework, whatever it may be, inflicts upon the mind. It is as if Nature, with a sardonic fancy, were determined to misshape into mountebanks all those of us who are permitted to swink and sweat (to use the picturesque old phrase) through our years of maturity. And I wish it to be understood that I do not refer here chiefly to those incidental malformations which attemper the physique to forms of manual labor—the deformities that so offended patrician Greeks; probably the most generalized and freest career that we have is that of the man of all work, the digger and delver, while the most intensely specialized life is one caught—in waking hours and in dream—in the meshes of huge and inescapable enterprises. Indeed, as I gaze curiously at the twinkling windows of these great combs of buildings which hive our professionals and mind-workers, and reflect that in each hot little box of an office is being steamed and contorted into rigid shapes what once promised to be a free human mind, I cannot but wonder if this sort of confinement is not more deadly than that of the underground miner after physical matter, who but becomes

owl-eyed to the light of day; or yet if our industrial civilization is not more truly bent upon punishment of the soul than was ever the ascetic cell of the monastic age upon punishment of the body.

Of course, this is not the aspect of the life-work that appears to the youth. For him what lies before is a challenging opportunity to try out his powers, to pit himself man against man, mind against mind, and more than all to measure his human prowess with the problem which the dark material of unfashioned Nature shall set for him: whether muscle or wit be the agent, whether politics, business, or the mechanics of life be the medium, he is full of anticipation and the will to dare, and ready to wager every power that he possesses against the threat of slavery. In his heart of hearts he intends that Nature shall become not his prison but his habitation, and he proposes to ride, not to be ridden by, his life-work. In the broad, he is justified, too; for however aware we must become of the serfdom of this man or that to the habits and interests which his toils have exacted, looking at our human achievement in the whole, we men have right to feel some exultation in the degree to which collectively we have subjected our brute Earth. Our works have not risen above nor passed beyond her, and we know that we have built nothing which she will not reclaim with inevitable sands and seas; but for our moment—our brief million years, if it be that—we have at least farmed and canaled and mined and walled her formless body, and made her to yield the sustenance not only of dust-born bodes but of spiritual arts. Youth is instinct with this triumph of our manhood; and it is in this, that for youth, lies the beauty of the work of maturity.

Truth is, one should liken maturity to a new growing period, in the bodily, restricted mode. Maturity, not old age, is our real second childhood. Just as in the upspringing years we are engrossed with the fantastic changes of

our material flesh and blood, every enterprise more or less an appetite, so in maturity we are engrossed with the material bricks of our Earth-built habitations and the material objects of our Earth-bound thoughts. We are building a new and larger body, physical like the organic, geometric in the true sense of being Earth-measured, mechanical even where it finds expression in idea, business-like everywhere. Not merely things, and their ways, but also men, and their ways, form the substance of this material habitat which is the shell of our mature lives, and which dangerously threatens to become the tomb of our souls. There are, I believe, children who grow so rapidly and distortedly that they become monstrous, organically over-fed, and out of human proportion. So also, in mature years, men become overfed with business and its undertakings, or with politics when politics gets the better of the man, or with any work which converts a soul into a routine. In every avenue monstrosity threatens, and as the issues of life are more complex than those of childhood, so the chance is happier if a man emerge from the pressures of his maturity without malformation.

We like to talk of the years that lie between majority and retirement as if they were life. We tell the youngster, not that he is living, but that he is preparing for life; and to the old man we talk pleasantly, as to one honorably interred, of a life well spent or a life-work done. We seem to refuse the fullness of vital being to the first and the last years of our sentient bodies; though I often wonder if this is not mainly due to the busy-body, elbows-out traits of that period in which we collect the world's rents and sign its cheques and conduct most of its conversations. Actually, the small boy with his indulgent grin at the grown-up, the respectful juveniles to whom I do so much superfluous talking, the old man meditative in retirement, actually are not these as living and profitable and human as myself, or

others of my years? Our words are a polite assent; but our proclaimed theories deny it.

For my part, I should not divide the life of man into sequently graded ages, logically gliding into one another, but into pupal and metamorphic periods like those of insects; into periods of incubation and transformation, generalizations and particularizations of form. The baby is generalized, and childhood particularizes him into a man; the youth is generalized, and maturity particularizes him into a worker: childhood is an incubational period, with youth its metamorphosis, just as the infant is the metamorphosis of the embryo; may it not be also that old age is the metamorphosis of the worker for whom maturity is the pupal period, as childhood is the pupal period for winged youth? Certainly, there are striking analogies between youth and age,—as the crescence and senescence of the moon are analogous.

For one thing, neither youth nor age lives in its present (as childhood and maturity both do). Time for youth is future time; life is in anticipation, hope, design. Time for age is past time, and memory and reflection are its fuels and its illuminations. They are both periods of comparison and perspective, whether in prospect or retrospect; and they are both periods of choice and of judgment, and therefore of freedom. Yes, maturity is the second childhood, age a second youth; and like youth, age may be beautiful.

It is, of course, beauty in another dimension. The blank hieroglyph of humanity into which the physical features of youth so readily fade is less obtrusive because less simple. Something has transpired to alter the significance of lines and spaces; toil and thought have written their texts, and the countenance is become a palimpsest of past wills and emotions. The countenance of the old man or woman is an image, not of decorative but of symbolic art; and if it be beautiful it is for its meaning. The fascination which

ancient sculptors found in the depiction of the beautiful soul of Socrates behind his Silenus mask exists in some degree for every beautiful old person: the charm is in a dimension which has wrought more powerfully than Nature herself, and has defied her decays.

So far as physical charm is concerned the acme is reached when man is first full grown, after the gangling and scrawniness and awkwardness of the growing age is passed. Thereafter, the years are but slow attritions, Nature scarring and furrowing what in sport she had made fair. But that very spirit which in youth had suddenly wakened to something more than the physical, which had viewed life in prospect and thrown down the gauge, that, if it survive, gives to age a new complexion and it gives a new tone to the whole human image; and if it be beautiful, it is because the man has conquered Nature's witherings, because he has not only done his work, but has outdone it.

The attainment of this fullness of age has in it something of contradiction. The presence of the baffled body is a fact no one can gloss over: its powers are decrepit; its senses are blunted; it shivers and cringes and calls for warmth as its fires subside; and if its form be mimicked and fixed, as in carved wood or molded clay, it becomes unlovely and forbidding. Toothless, rheumatic, blear, and gray, Nature strives to teach us our places, to portray us self-detestable; and the body is helpless. But the soul of man can defy her, and the spirit of man has defied her in the greatest of its proclamations. For the grayed beard is our token of sagacity and of the venerable; the Father of the Gods is imaged as a bearded father; and of him who reveals the wisdom of life it is written: "And his head and his hair were as white wool, white as snow; and his eyes were as a flame of fire; and his feet like unto burnished brass, as if it had been refined in a furnace; and his voice as the voice of many waters." This is the image, not of

a Greek Apollo, but of one tried in the crucible of the flesh, and emerged therefrom in a spiritual body. One sees sparks of this fire, now and again, in the wise and tender eyes of the old, and it is the most spiritual thing one sees upon this Earth; and one hears, now and again, in their voices a music as of the waters of many living streams, and it is the truest attestation of the beauty of life which one hears upon this Earth.

There is a passage in the Iliad which seems to me to compress in its half dozen verses the essence both of the contradiction that is in age and of its affinity for youth. It is where the old men who had ceased from battle because of their years (though they were yet stout orators), sat upon a tower of Troy overlooking the field—like grasshoppers upon the limb of a tree (so writes the satirist), and their voices woman-thin. And when Helen, the bane of their city, passed in the splendor of her youthful flesh, they addressed to one another winged words—

Ou nemesis Troas kai euknemidas Achaious . . .

"Blame be to none if Trojans and battle-geared Greeks endure peril for such a woman: like she is to a deathless goddess!" The glamor that was Helen and the glory that was Greece are somehow compressed once for all in this fragment of eternal wisdom, piped in failing tones from the worn old bodies.

A thousand and more years after Troy, Longinus was thinking back to Homer. And he likened the poet of the Iliad to swift, impetuous youth, battle-cry, charge and echo caught in one irresistible onslaught. But the Homer of the Odyssey he drew in an image that is yet more significant, for he conceived him now to be an old man whose imagination was rich with all the splendors of a setting sun, playing upon the foam-flecked shallows and pools and runlets of the varied coasts of life, when Ocean is depart-

ing, with the outflow of his vast and mysterious tide. Such is the beauty of the evening of life, where the field of the years has been well fought through, and physical flesh and physical Nature have been denied their triumph.

Like youth, old age is likely to be generous in its judgments and friendly in its dispositions; it is tolerant and kindly and sympathetic—provided, of course, that it is a successful, and not a broken old age. These virtues come from its understanding of life, from that empirical wisdom which has immemorially made of the gerontes, the Elders, the natural counsellors of mankind. They come also, from the fact that age, more than does another period, has succeeded in freeing itself from the prejudices of passion and desire; and that its judgments have, therefore, not only the weight of experience to uphold them, but also the finer quality of impersonality. The old are true judges, for they alone are true freemen: the very point which Plato quotes the aged Sophocles as making. Flesh is after all a kind of miasma of appetite, and there is liberation and sanity in the wearing away of its distempers. Age, therefore, complete in experience and retrospective in understanding, seems somehow a fulfillment of all that is normally humane.

Indeed, I have sometimes wondered whether, if all men were to arrive undefeated and healthy at the full round of their three score and ten, we should ever have anticipated more of life; whether such a cycle of years would not seem a perfect thing in itself, as a flower may be perfect; and a natural prelude to death. With such a certainty we should have no need of Gods or Saviours; Fates only would suffice; and life would be as admirably definite as the demonstration of a theorem, as satisfying as a flawless play. This is not so; death has many preludes, and men cling to their Gods. But at least it gives pause to thought that occasionally we see the round of a man's years given the quality of rounded art.

But when I give the matter second thought, it takes on a different air, and age begins to assume the guise of an apocalypse of things metaphysical; like youth it is an opening up rather than a closing down of the portals of reality. That very fact of which I have spoken, that the successfully old man has quieted and tamed the flesh, that he has constructed a home for himself out of the meager measures which Nature has assigned to him, this indicates something more than flesh or physics as the core of his energies; and it indicates also that this something is not acquiescent in our world, but hostile and self-assertive. It is what we call the spirit of man, which somehow gains its fullest form only by outliving the worst which physical ugliness can do to us; and which, in age, may appear at the last beautiful in spite of all indignities. This is no thing found in fulfillment, no natural fruition, no mellow-ripe of autumnal life; it is rather a flame burning after carnage, spectral as seen from the field, but unconsumed. When it vanishes we speak of death; but actually we cannot think of it as gone, any more than I can actually think away the intelligences of the youths before me in the classroom when, for the moment, their faces fade into expressionless hieroglyphs. Old age completes the circle of man's possible adventures with the clay of his body and the clay of Earth, but the possibilities of his spirit are comprised within no such bounds —as no beauty proclaims more than does the beauty of an old person.

Is it not odd that the word Death should mean more to us than does the word decay? We look with a certain uncomfortable curiosity, perchance distress, upon the denuded bones of our physical frames, and we use skull and femurs to symbolize death; but death is more than the dust and ashes; like Birth and Youth, Death is a proper name, and the being it names is a keeper of portals. This, at any rate, is the image men have made.

Clearly it is the experience of dying, not corpses and interments, that men personify; and (flout it in the face of the materialists) it is in this experience that lies the core of our fascination with life. One need not hark back to the paradox of Socrates, that the philosopher's truest living is a mode of dying; nor to that of Jesus, that whoso loseth his life, for the spirit's sake, shall save it; nor yet to what I have already said of the character of the triumphant old people; for this truth attaches to every guise of death, and is proclaimed by all our codes of honor and by all our idolatries of heroism. There is something game in knowing how to die right; and there are decencies connected with it, and mysteries. Pain, as we know, is often the breaker of its seals; and perhaps the pain is in part clew to our trepidations; but neither pain nor decay can give us the full account of what we expect of death. At the least death must come as a moment of life; and though it be the last moment it is still in some mode a crowning moment. When the eyes glaze and the breath ceases an invisible Something is revealed: of that we are intuitively convinced.

Is it perchance that the moment of death is actually a moment of metamorphosis, as so many of the children of men have strangely believed? There is little in the nature of things to contradict such a supposition; there is enough to support it, if the ocular be not demanded. For of course, eyes of the flesh see but flesh; as I, in my bizarre moments, see the schematized faces of my class-room; it is only the mind, looking into and speaking with physically invisible intelligences, that can see such a possibility as that of which I speak. Yet to the mind it is a simple thing; for it is the minds own mode of fullest life that is bespoken. Growth of the slow, incremental kind is known to us only in the physical world; change of continuous sort is known only there. But in the mental world we are wholly familiar with transformation and re-embodiment: these indeed are

what thinking is, and through these are born all works of genius—those creative achievements which make men most of all godlike. And if life be radically such a series of metamorphoses as I have described: childhood transforming into youth, youth into maturity, maturity into age; and if the net form of these be, as I have described, embodiment succeeded by disembodiment, progressive liberations from physical flesh and from physical nature—if this be a fair description, can there be any marvel in deeming that at the last, with the earthly casts flung aside, the spirit that has conquered these may not take unto itself still freer forms? Those for whom thought is oxidation, and intelligence conditioned reflexes, and their own words but their own breaths, they will laugh at the notion—but the mystery of a life that created the sudden glory of laughter is their sufficient answer.

If I were asked what it might be like, the Resurrection, the reply seems to me to be simple. Dreams, at times, resurrect our past lives with terrible vividness. But when they do so most effectively, I have observed, it is in an allegorical, a symbolic mode. The dream comes with an image which is not a memory, but an embodied meaning, though the embodiment be phantasmagoria. There is something in it more penetrating than even are the tense moments of waking experience; the loves and terrors are as vivid, and the understandings are vastly more so. It is as if one were suddenly and actually reborn, a moment of life lifted up into new being, transfigured and transubstantiated. For one whose metaphysical conviction is, as is mine, that the whole physical world is of the stuff that dreams are made of, that it is a symbolic thing, or nought at all, it is but as the order of Nature that the spirit which has found itself so amazingly in the midst of the phantasms of sense, might even more readily and purely find itself in ultra-terrestrial dimensions. We live on this Earth, we live in astronomical

space, but a very little of our time; most of our lives are spent in realms of intangible emotion and invisible thought; there is where our realities abide, even as now the reality which I am addressing is nothing visible nor tangible, but is an intelligence, out of metered time and space, in which I more firmly believe than in any physical thing. Is it unthinkable, then, that when the hour comes that I should turn elsewhere, when the hieroglyph is gone, the phantasm vanished, is it unthinkable that the spirit should still live on in its accustomed forms? All turns on this duplex word Death: when we think of death for others, we think of the corpse, the blank; but when we think of our own death, it is as of an adventure, perhaps not unfamiliar in kind, that we think.

I come back to my class-room. There they are—forty clear-eyed, blooming youngsters. The future is in their hands; not mine to give them, but theirs by divine right. Is it a future of material cities, and blustering business, and warping bodies, and corpses—or is it the future of the Spirit of Man, kingly over physical stuffs? I look beyond the surface dazzle, into the illumined depths of their souls, and the light that I see there is a creative light.

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INFINITY AND THE INFINITESIMAL

(Continued)

PART TWO

I

CONNECTED so closely with, as in many respects to be indistinguishable from, the problem of the infinite, is the problem of its apparent opposite, the infinitesimal. Passing from one to the other appears outwardly to be taking a gigantic leap, since the former concept is of the infinitely large, whereas the latter is of the infinitely little. Here, however, as in some other departments of mathematical philosophy, that which first impresses us as being unnecessarily difficult if not impossible is soon discovered to be a feat alike necessary to perform and fairly easy. In accuracy, indeed, most of the features of these two problems which are customarily separated are identical. We discover at once, if we but stop to analyze our discourse, that we can not profitably speak about the one concept without speaking at the same time about the other.

Since this is a conclusion which we think can not with consistency be avoided, it is somewhat surprising to find that there are many writers today who hold a contrary opinion. The infinitely great, they maintain, is a legitimate concept; nay more, it is indispensable to the science of modern mathematics.[51] The infinitely little, on the other hand, is an unnecessary concept, and, although once erro-

[51] For example: "Greek mathematicians usually shunned this notion of the infinite, but with it modern mathematicians completely revolutionized the science." F. Cajori, *A History of Mathematics*, 1919, p. 160.

neously thought to be necessary, is now seen to be negative and even ridiculous.[52] The infinitesimal is no longer a conspicuous point of mathematical dissension; since the time of Weierstrass it has been abandoned. It is difficult, however, to understand how a problem which once estranged but latterly has effected a reconciliation between mathematicians, is itself to be reconciled with their positive doctrine of the infinite.

No arguments that we can muster more effectively destroy the concept of an infinitesimal quantity than those employed by Mr. Russell, whose contempt for the infinitely little is matched only by his respect for the infinitely great. The continued division of a quantity, he writes,[53] gives us always finite quantities. In the end the quantity will not be infinitesimal simply because there is no end. This argument to us appears irrefragable. But when Mr. Russell reasons thus he leaves out of reckoning his positive theory of the infinite. In order to make this clear, let us for argument's sake assume that the theory of the positive infinite, against which we argued in the preceding section, is valid. It is admitted, then, that there can be a number which comes after (is greater than) all the finite numbers—and that something can come after an endless series.[54] Now it will be remembered that the infinitesimalists (whom we shall examine a little later) maintained that a finite quantity infinitely divided became actually infinitesimal (*i. e.*, less than any finite quantity, yet not equal to 0), and upon this ground they fought their losing battle. Bearing now in mind our postulated validity of the "completed" infinite, it would appear that their defeat was merely a chronological accident. Had they lived and written later by two and

[52] Russell, *Mysticism and Logic*, pp. 82-4: ". . . at last Weierstrass discovered that the infinitesimal was not needed at all . . . thus there was no longer any need to suppose that there was such a thing." *Cf.* also Hobson, *op. cit.*, Vol. I, p. 41.

[53] *Our Knowledge of the External World*, p. 135.

[54] *Ibid.*, pp. 178, 181.

one-half centuries, they might have sharpened their pens with the arguments of Dedekind and Cantor, and proved their point to the satisfaction of, at any rate, those mathematicians of the present day who regard the Cantorian doctrine as unquestionable. For the latter have openly admitted that a number *can* come after (that is, be greater than) any member of an increasing endless series, and thus the chief obstacle to the acceptance of the infinitesimal is already banished. For the converse of the operation which yields Aleph-zero and its peers to the infinitists will yield the infinitesimals to those who desire them. An "infinite number" is a number which comes after the endless series of finite positive integers; so, we maintain, an infinitesimal is a number which comes after the endless series of decreasing fractions less than 1. If something can come after the endless series in the one case, something can come after the endless series in the other.

The contradiction in Mr. Russell's work stands clearly exposed when the passages in question are placed together. In the book[55] they are separated by forty-six pages of text —an interval amply sufficient for one of Mr. Russell's whimsical agility to raise enough paradoxical dust to conceal their mutual repugnance:

Loc. cit., p. 135: "Suppose we halve a given distance, and then halve the half, and so on. . . . This infinite divisibility seems at first sight to imply that there are infinitesimal distances, *i. e.*, distances so small that any finite fraction of an inch would be greater. This, however, is an error. The continued bisection of our distance, though it gives us continually smaller distances, gives us always *finite* distances. . . . 'But,' it may be said, *'in the end the distance will grow infinitesimal.' No, because there is no end.* (Italics ours.) Thus infinite divisibility of distances, does not imply that there are distances so small that any finite distance would be larger."

Ibid., p. 181: "The first infinite number is, in fact, beyond the whole of an unending series. 'But,' it will be said, 'there cannot

[55] *Our Knowledge of the External World*, pp. 135, 181.

be anything beyond the whole of an unending series.' This we may point out is the very principle upon which Zeno relies in the arguments of the Race-course and the Achilles. Take the Race-course: there is the moment when the runner still has half his distance to run, then the moment when he still has an eighth, and so in a strictly unending series. Beyond the whole of this series is the moment when he reaches the goal. *Thus there certainly can be something beyond the whole of an unending series.*" (Italics ours.)

It is a pity for mathematical logic that Mr. Russell can not establish communication between his cerebral hemispheres with respect to these quantities that can and can not come after unending series. Let him import some of his excellent reasoning upon the infinitesimal into his treatment of the infinite, or carry his bad reasoning upon the infinite into his treatment of the infinitesimal, accept the despised and rejected entity, and be consistent at any rate. Mr. Russell, we fear, has been saved from the infinitesimal by Weierstrass only to be betrayed to the infinite by Cantor. "Infinite numbers" appear necessary to Mr. Russell; since the work of the Berlin School, the infinitesimal has fallen into the disrepute it clearly deserved. But had this been otherwise, and the infinitesimal seemed necessary to Mr. Russell, in how blithe a manner would he chide them of antiquity whom the problem troubled. "It is here," he would say,[56] "that the positive theory of the infinite comes in and makes all straight. For when x has the relation R to $a, b, c, \ldots$ (when $a, b, c, \ldots$ are finite numbers) and R is the relation which $a, b, c, \ldots$ have to $\alpha, \beta, \gamma, \ldots$ (when $\alpha, \beta, \gamma, \ldots$ are transfinite numbers), x is said to be infinitesimal." This definition would, we think, have delighted the hearts of the infinitesimalists. In what way it is less valid than the definition of an "infinite" or "transfinite" number, escapes us, based as it is on a logic too fine, and, above all, we fear, too supple. Aleph-zero is said to be an "infinite number"; its reciprocal (1/Aleph-zero).

[56] *Opus Hypotheticum*, pp. $1/\infty - \infty$.

we should think, is an infinitesimal number. As Aleph-zero is reached by the First Principle of Generation, just so, we submit, is the infinitesimal reached by the First Principle of Degeneration.

II

That what once was necessary is now useless, and what important now trivial, is itself an interesting commentary on the somewhat flexible modes of a science famed for the unchangeableness of its fashions. That, in addition, the same object of thought, within a single era of history, can be both mathematically useless and logically indispensable —this is surely enough to pique our interest, and even to arouse our suspicions.

The disfavor into which the infinitesimal latterly has fallen may be a silent indication that its metaphysical elder brother, the Infinite, is not so popular as it was in those naive days when natural philosophers courted its fascinating cousins, Fluxions and Increments. It seems more likely, however, that our altered attitude toward the infinitesimal has been occasioned, in part at least, by the development of modern physics; that the theory of quanta as developed within the last twenty years has been influential in bringing our reaction to a climax. For, as we have seen, infinity is a concept not lacking in favor. In so far as it is used to lend magnificence to the notion of magnitude, it has suffered very little at the hands of those who have ridiculed it. Astronomical research, in other words, as yet offers no direct evidence of the emptiness of this term (except with respect to certain astrophysical problems mentioned later) corresponding with that furnished by atomic analysis regarding the physical unreality of its converse. Physics hence may have left this extremely significant mark on mod-

ern philosophy. At the same time, such facts may be nothing but coincidence, so we shall not dwell on them for the present. But a circumstance of extreme relevance to our problem, from the standpoint both of logic and mathematics, is that infinity thrives lustily whilst the infinitesimal grievously languishes. The fundamental question immediately suggesting itself, therefore, is the following: How do mathematicians justify logically the waning popularity of infinitesimals in the light of their own asseverations that the infinite is incontrovertibly proved?

But first it may be well to ask what infinitesimals are, or (to speak more accurately) what they are supposed to be; for opinions on this matter differ widely.

"There are great difficulties in trying to determine what infinitesimals are: at one time they are treated like finite numbers, and at another time, like zeros."[57] "Some interpreted them as quantities which were entirely null," remarks Voss of the contradictory statements of earlier writers, "others mystically pictured them as magnitudes which, although smaller than any other imaginable magnitude whatever, yet contained in all cases the germ capable of producing a finite quantity."[58] Leibniz himself, to whom the concept is chiefly attributable, though in some particulars he was indebted to Pascal, wavered between treating infinitesimals as zeros, as real quantities, and as pure fictions. "When he considered these quantities in their origin," Bledsoe has observed of the quandary into which the father of the calculus wandered, "and looked at the little geometrical lines which their symbols represented, he thought they must be real quantities; but since these quantities might be infinitely less than the imagination of man could conceive . . . he was inclined to believe that they must be veritable zeros. But, not being able to reconcile

[57] P. E. B. Jourdain, *The Nature of Mathematics*, 1910, p. 70.
[58] A. Voss, *Ueber das Wesen der Mathematik*, 1913, p. 47, cited by E. Rignano, *The Psychology of Reasoning*, 1923, p. 173.

these opposite views or to rest in either, he sometimes effected a sort of compromise, and considered his infinitely small quantities as merely analytical fictions."[59] The Marquis de l'Hopital, a celebrated follower of Leibniz, sought to escape by a method more definite in appearance, indeed, but not otherwise less confusing in its application than the tortured evasions of his eminent German master. "We demand," the Marquis desperately demanded, "that we can take indifferently, the one for the other, two quantities which differ from each other only by an infinitely[!] small quantity, or (which is the same thing) that a quantity which is augmented or diminished by another quantity infinitely[!!] less than itself, can be considered as remaining the same."[60] Newton, about the same time in England, was wrestling himself with this grand problem. "Quantities, and the ratios of quantities," said he, "that during any finite time approach nearer than any given difference, are ultimately equal."[61] The influence of this last statemen. by Newton, though rejected by several writers soon afterwards, was, as might be expected, enormous. Despite the flat verbal contradiction in this lemma, it was overlooked by many of his contemporaries and followers who were not in the least dismayed, apparently, by seeing "ultimately" written out where "the end of eternity" would have appalled them. As a consequence, the self-refuting statement that the process of dividing a finite quantity will "ulti-

[59] A. T. Bledsoe, *The Philosophy of Mathematics,* Philadelphia, 1874, p. 145. Compare, however, upon this difficult question, Vaihinger's statement that Leibniz ultimately rested in the belief that the infinitesimal was but a *modus dicendi. The Philosophy of "As If,"* trans. by C. K. Ogden, 1924, Pt. II, Sec. 22.

[60] The Marquis de l'Hôpital, *Analyse des Infiniments Petits,* 1696, p. 3.

[61] Sir Isaac Newton, *Principia,* Bk. I, Sec. I, lemma I. The above is Robins' translation. It is instructive to note that Jurin's varies somewhat from Robins' version. *Fiunt ultimo aequales* are Newton's own words, and would appear to mean just one thing, *viz., do become ultimately equal.* Yet there is nothing like a dead language for embalming logical quibbles. Fortunately for us today, few writers are bilingually minded, though this circumstance, in another sense, is to be regretted: posterity might credit us with sanity if it could be found that our metaphysical differences rested, at least in part, on etymological misunderstandings.

mately" reduce it to zero, soon became not merely a mathematical tenet of faith among Newton's disciples, but a self-evident principle which was speedily incorporated as such in otherwise reputable treatises on the science of quantity and proportion. Indeed, during many succeeding decades numerous technical works on higher mathematics, accepting Newton's dictum as revealed wisdom, failed both to smooth out its logical discrepancies and to suggest how such a theorem should be mathematically interpreted by those using it. A hundred and fifty years later the doctrine was being reflected, without in the meantime having been retouched by deliberation, in a famous English treatise on the calculus. "A difficulty . . . connected with the notion of a limit," we find there written without apology, "appears to embarrass many students of this subject—namely, a suspicion that the methods employed are only approximate. . . . In such a case he [the sceptical student] must examine the demonstrations, and if he can find no flaw in them, he must allow that results *absolutely true and free from all approximation* can be legitimately derived by the doctrine of limits."[62] And this doctrine, despite assailants whose mathematical learning gave them the right to speak as authoritatively as any of its defenders, and who believed in addition that common sense had a legitimate bearing on their science, survived and prospered exceedingly. Although such eminent thinkers as D'Alembert, Cauchy, Duhamel, Euler, Lagrange, Maclaurin, and Robins, either openly repudiated the doctrine or else seriously restricted its implications, it was frequently accepted as an axiom.

It is small wonder, then, that in the presence of endless arguments and counter-arguments and rejoinders, as to the nature and value of infinitesimals, Berkeley should have concluded that the Church was not the mother of all error.

[62] Todhunter's *Differential Calculus*, 1855, cited by Bledsoe, *op. cit.*

If his summary of the open disagreement he found amongst the most learned mathematicians of his day reflects but little honor on the ecclesiastical dogmas he subscribed to, it sheds the gravest discredit on the science. Thanks to the intervention of a Bishop some of the more overt symptoms of mathematical hysteria were allayed. Even today, however, there is some justification for his strictures; their immediate cause is, it is true, somewhat altered, since the present attitude toward infinitesimals is generally contemptuous. But disagreement amongst mathematicians, on several fundamental features of their science, renders them at least partially subject to his criticism. Well known as it is, we can not therefore forbear quoting a significant portion of his reply to Jurin.

"Believe me, sir," retorted Berkeley to Jurin, who had assailed his criticism of Newton's doctrine, "Believe me, sir, I had long and maturely considered the principles of the modern analysis before I ventured to publish my thoughts in the *Analyst*. And, since the publication thereof, I have freely conversed with mathematicians of all ranks, and some of the ablest professors, as well as made it my business to be informed of the opinions of others, being very desirous to hear what could be said towards clearing my difficulties or answering my objections. But though you are not afraid or ashamed to represent the analysts as very clear and uniform in their conception of these matters, yet I do solemnly affirm (and several of themselves know it to be true) that I found no harmony or agreement among them, but the reverse thereof, the greatest dissonance and even contrariety of opinion, employed to explain what after all seemed inexplicable. Some fly to proportions between nothings. Some reject quantities because infinitesimal. Others allow only finite quantities, and reject them because inconsiderable. . . . As many men, so many minds; each differing from one another, and all from

Sir Isaac Newton. Some plead inaccurate expressions in the great author, whereby they would draw him to speak their sense; not considering that if he meant as they do, he could not want words to express his meaning. Others are magisterial and positive, say they are satisfied, and that is all; not considering that we, who deny Sir Isaac Newton's authority, shall not submit to that of his disciples. . . . All of which I mention . . . that the unprejudiced inquirer after truth may see it is not without foundation that I call on the celebrated mathematicians of the present age to clear up these obscure analytics, and concur in giving to the public some consistent and intelligible account of their great master, which, if they do not, I believe the world will take it for granted they can not."[63]

Contempt so deliciously urbane as this was almost certain to ruffle the waters. And, in fact, it did so at once, by way of drawing Robins deeper into a controversy he had already entered with Jurin when he had criticized Berkeley's *Analyst*. Robins' part in the discussion which now followed is somewhat baffling, in that with Berkeley he denied the literal validity of the infinitesimal postulate of Newton. His animus toward the "ingenious Bishop," it would almost appear, was merely stronger than his reverence for Newton.[64] For his tortured defence of Newton, as Bledsoe has sensibly remarked on this point, is really an interpretation giving the lie to his master. "The views of Mr. Robins," writes Bledsoe, "respecting the method of limits, appear perfectly just as far as they go; yet nothing could be more ineffectual than his attempts to deduce these views from the *Principia*." Elsewhere Robins' para-

[63] G. Berkeley, *A Defence of Free-Thinking in Mathematics*, XLIII-XLIV.

[64] For a fuller discussion of Robins' part in the controversy, as well as for an excellent historical survey of the whole problem, see Florian Cajori's *A History of the Conceptions of Limits and Fluxions in Great Britain, from Newton to Woodhouse*, 1919. Regarding the particular point of Robins' interpretation of Newton, see especially p. 110 therein, which conforms with Bledsoe's remarks above quoted.

doxical feat is duly examined, and Bledsoe sums up, with a pointed query, the curious attitude of this opponent of Berkeley, to wit: "Newton himself, as we have seen, expressly asserts that 'the parallelograms will in *all* parts coincide with the curvilinear figure.' But Mr. Robins, in his explanation, says they will *not* coincide. . . . Now is this to interpret, or simply to contradict, Sir Isaac Newton? No one could possibly entertain a doubt respecting the meaning of Mr. Robins. If Newton had meant unequal, could he not have said so just as well as Mr. Robins?"[65] Now, antiquated as the foregoing arguments appear today, in the light of our assurance that the infinitesimal is devoid of existence (and but a few of the historic battles over this point have been mentioned), nevertheless it is salutary to remind ourselves that a matter as mathematically fundamental as the infinitesimal was once thought to be, could have furnished occasion for anything but agreement. In truth, the situation is even worse than we have presented it: not only are two eras in conflict, but some writers manage to contradict themselves without any posthumous assistance. Hans Vaihinger is one of

[65] Bledsoe, *op. cit.*, p. 193. De Morgan (*Philosophical Magazine*, 4 S., Vol. IV, 1852, p. 328) contended that Newton, in his *Tractatus de Quadratura Curvarum* (which, as an appendix to the *Opticks*, appeared in 1704 between the first and second editions of the *Principia*) clearly renounced the infinitesimal. It may be argued that Newton's warning therein—"The very smallest errors in mathematical matters are not to be neglected" (*Errores quam minimi in rebus mathematicis non sunt contemnendi*)—justifies De Morgan's contention. Yet Newton, only a little further on in the same work, remarks that the "analysis may nevertheless be performed in any kind of figures, whether finite or infinitely small, which are imagined similar to the evanescent figures" (*Peragi tamen potest Analysis in figuris quibuscumque seu finitis seu infinite parvis quae figuris evanescentibus finguntur similes.*) And in the face of this, Cajori, justly we think, maintains that "If what he [Newton] used in 1704 is not the infinitely little, it is so closely related thereto that it can not be called either a finite magnitude or an absolute zero" (*op. cit.*, p. 35).

De Morgan's mathematical genius was undoubtedly great, but his mathematical attainments on more than one occasion seriously crowded his logical talents. For us, at any rate, it is difficult to make logical consistency of the attitude of one who is "fixed in the faith of the *subjective reality of infinitesimal quantity*"; but who "do[es] not believe in *objectively realized infinitesimals*" nor an "infinite number," and who, believing in the experiential basis of mathematical concepts, retrospectively patted Newton on the back for inaugurating what we considered was a purification of the elder mathematician's methods.

these. And therefore, although we have no desire to detract from either the validity of the "as if" approach, or the merits of this German as a thinker who, in developing his fictional doctrine, has made a brilliant contribution to modern philosophy, we must mention unfavorably a questionable use of this principle by that writer. Vaihinger maintains that the infinitesimal, like the infinite, is a fiction. And, although freely admitting it to be such, he also urges the fruitfulness of this fiction. Unfortunately, by allowing the fiction a place in his general doctrine, he casts serious discredit upon it, involving himself in the same tangle of words that cripples the reason of all those writers who do not repudiate such fictions at the outset. He contradicts himself, in fact, on adjacent pages. We shall quote the passages in question; and the reader may then determine for himself whether our strictures are an injustice to the author. The first passage occurs on page 242:

"In strict logic, as we have already remarked, we could never subsume the curved under the straight line. All the laws of rectilinear figures hold only for such, and rectilinear figures remain rectilinear, *even if we increase the number of their angles to infinity.*" (Italics ours.)

The second passage occurs on page 243:

"We saw above that the equation of an arc with the side of a polygon was false, and that this could only be nullified by thinking of both elements as diminished *ad infinitum, when the error disappeared.*" (Italics ours.)

We ourselves, as we have said, can make nothing of these two statements but the plainest and the flattest contradiction. In one case, infinity turns the trick; in the other, it fails to. What, then, is the answer to the problem? The answer, as we have more than once suggested, is simply that a writer, no matter how brilliant a dialectician, is nearly powerless to pen two consecutive paragraphs

that shall not give rise to just such a contradiction, if the word *infinite* or *infinitesimal* appears in either of them. And it is for this reason, which appears cogent, that we belabor these two terms and those using either, in any of their works, with the least seriousness. For the fiction is not fruitful: it is sterile. Indeed, it is worse than sterile: it is poisonous. It is sterile in its applied, poisonous in its logical consequences. If it does not, as we have just watched it do, poison two adjacent pages of philosophical writing, the havoc it works is delayed merely—as we have already seen in the passages by Mr. Russell who, with greater skill, managed to keep his antithetic conclusions further separated.

In other words, whilst calling infinity and the infinitesimal fictions, Vaihinger, intent upon justifying the geometer's subsumption of curvilinear under rectilinear figures, overlooks the uselessness of his apparatus. We find that the subsumption is necessary; but the fiction of the infinitesimal is neither necessary to mensuration nor logically justified. For what actually is done in determining the area of a circle from the area of an inscribed polygon, is merely this: we first make a fiction called a polygon; we next make another fiction called a circle; and though the two fictions by definition are incommensurable, we now make a third fiction that they are *not* so. And it is this third fiction, *This polygon is this circle,* that mediates between the two original fictions and permits our taking the one for the other. More than this never is done, nor is there reason to believe that more than this ever can be done, in the comparison of the areas of such surfaces. The fiction of the infinitesimal is not only useless for actual measurement, but is destructive of the very logic that would justify it.

Will a rectilinear figure, given a regularly increasing number of sides, finally coincide with a curvilinear figure?

Or will it not? The answer would seem to be important. For if the coincidence be not exact, and the two figures fall short of agreement, albeit by as little as we choose to have them, the basis of the calculus is approximation and our variable can never attain its limit. In the past, as we have seen, some asserted that this limit could "ultimately" be attained; some, never; whilst still others of equal mathematical eminence, unable to rest in either conclusion, essayed the precarious task of straddling two horses that galloped in opposite directions. Vaihinger, as we have shown, is one of the latter redivivus. "Disputes are multiplied," Hume cynically concluded two centuries ago, "as if everything was uncertain; and these are managed with the greatest warmth, as if everything was certain." Although Hume's scorn was not directed explicitly at contemporary mathematical thinkers, it bore on their disagreement; and it held, as we now see, no small measure of prophetic significance.[66]

As we have seen, but as we may be pardoned for repeating since our survey of the infinitesimal herewith terminates, the figment has been generally abandoned. And for mathematicians' final if tardy renunciation of a spectre which was too much for even a Bishop, some measure of logical gratitude is in order.. It is nevertheless no part of

[66] A graphic presentation of the absurdity of the fiction under discussion might helpfully be pictured as follows: Each time that the sides of the polygon are to be doubled, let the diameter of the circle be likewise doubled; the actual linear discrepancy between the chord and the arc of the second figure will thus be the same as that between the chord and arc of the first figure. Since it is agreed by all that the *size* of a geometrical figure has no bearing on the accuracy of our deductions, we are at once presented with a picture concerning what is wrong with it any reader is privileged to answer. Whether we actually describe a new circle each time the sides of the inscribed polygon are doubled, or picture this new figure in imagination, this linear discrepancy remains constant; for we are just as competent to double the diameter of the circle as to double the sides of the polygon. And this, we submit, is an argument against both the practical and theoretical use here of the infinitesimal: if the linear discrepancy was one inch to begin with, the discrepancy will each time have that same magnitude—irrespective of whether the enlarged circle is empirically given or whether, as we have the right to demand, its defined increase is put in a one-one relation with the defined increase of the sides of the inscribed polygon. Should the reader like to pile Pelion on Ossa he may, moreover, try the experiment not of doubling but of *tripling* the diameter of his

impertinence to point again to the delay of its burial; to remember the logomachy which attended its passing; and finally to wrest from this pitiful effort of mathematicians, who endeavored to blow life into a logical cadaver, the lesson which is offered by that picture.

III

The notion of an infinite magnitude, as we have earlier said, is counter to every datum of experience; and experience, as we now wish to indicate while entering upon the psychological genesis of our problem, is the sole channel through which such a concept is imported. Here at once there lies the potentiality of a contradiction—and one that has given great trouble to those who would either explain or understand it. If our concepts are formed from nothing but what is given in experience, how, it will be pointedly inquired, did we get the concept of infinity? On this point, serious misapprehension of the sensationalist's argument is so common, that we may be pardoned for briefly developing the reasons for our belief that this troublesome contradiction is an apparent one only.

What, then (suppose it to be asked in return), is meant by a concept of infinity? It will be answered, our notion of *neverendingness,* of eternity, of so on indefinitely without limit. But have we ever had any single experience of

circle each time that the sides of his polygon are doubled—in which event, of course, the longer he proceeds with his exercise the greater will be his reward in the linear discrepancy between two lines that are said to be "ultimately" equal.

Indeed, it is pertinent to inquire once and for all time why, if the notion of the infinite be so exceedingly useful that with it (in the words of Florian Cajori) "modern mathematicians have completely revolutionized the science," the quadrature of the circle—that *bête noir* of the geometer—has been finally and formally abandoned, even by those infinitists who themselves should effect it. Their ready despair does not speak favorably for the value of their treasured symbol; though we may be thankful that the plain absurdity of their position, in giving up the ghost of this problem, makes manifest to all the world the vacuity of that mental process by which they have gained sure possession of this barren what-not.

such a nature? The answer, quite obviously, is in the negative. "Today" has no meaning except as it is bounded by yesterday and tomorrow. An inch is a linear measure only because it is itself a limited extension. And the same is true, *mutatis mutandis,* of a foot, a mile, or a light-year; a ton of coal, a sheet of paper, or a century. Whatever unit we select wherewith to determine duration, extent, or repetition, is a unit which has both a starting-point and a finishing.

Even mentioning so evident a fact may appear to call for apology. Its psychological bearing on the concept of infinity is so insistent, however, that we must ask the reader to extend his courtesy in the face of an apparent insult to his intelligence. Every unit, we therefore repeat, is limited. Experience thus seems to controvert at every step the concept of something unending. How, then, did the concept originate? It originated, we doubt not, nor can we discern any possible way of avoiding the conclusion, in those experiences which are limited in themselves, but the succession of which very naturally has fathered a vague notion of the interminable. Every object, that is to say, clearly terminates. But by what are these objects severally terminated? Surely by nothing but other objects which succeed them. Walking-sticks end where street pavements begin, under some circumstances; under other circumstances they may end merely with the adjacent atmosphere. But as regularly as they are found to end at all, their termination marks the beginning of some other object, or the inauguration of a novel sensory stimulus. It is therefore true that experience gives us no data which, in one respect or another, are not completed. But it is no less true—indeed, it is a corollary of this principle—that *completion is but another name for succession.* And it is this discovery which we are constantly making, if seldom

remarking in plain language, which is the sole basis of our so-called concept of the infinite.[66a]

The old saying, What can happen once can happen twice, and what can happen twice can happen thrice, is a happy expression of our meaning. In familiar speech, it indicates all that can legitimately be attributed to a word which, if interpreted otherwise than as a process of succession or repetition, is an altogether meaningless vocable. Whilst we clearly need a descriptive term for that serial process which might not inaptly be designated the *function of contiguous occurrences*—and here infinity does almost seem relevant—there is a very serious danger in assigning such a word even to the *process;* for its connotation, unfortunately, is at once boldly transferred, and that without the least license, to the *product.* Thanks to this transfer of meaning from the act of performing to the performance, we have been rewarded with such short-sighted statements as that there must be an infinitely great number since we could go on enumerating for ever; or that since we could visually take as many light-year strides into space as we pleased (at least apparently), space itself must be in-

[66a] That a second-rate American poet should exceed Cambridge mathematicians in logical rigor is a circumstance less amazing than we once might have thought it. The last person a logician commonly respects is a poet. Yet an argument, if rigorous, can hardly be deemed vitiated by its origin. If, besides being harmonious with the conclusions of the greatest thinkers of all ages, it includes a searching psychological analysis of the manner by which men delude themselves on infinity, such an argument and analysis bear repetition. Therefore, with less shame than should be felt by our antagonists when called to account by a versifier, we shall offer them the following pregnant utterance: "I may be permitted to say that I *cannot* conceive Infinity, and am convinced that no human being can. A mind not thoroughly self-conscious, not accustomed to the introspective analysis of its own operations, will, it is true, often deceive itself by supposing that it *has* entertained the conception of which we speak. In the effort to entertain it, we proceed step beyond step, we fancy point still beyond point; and so long as we *continue the effort,* it may be said, in fact, that we are tending to the formation of the idea designed. . . . But it is in the act of discontinuing the endeavor—of fulfilling (as we think) the idea —of putting the finishing stroke (we suppose) to the conception—that we overthrow at once the whole fabric of our fancy by resting upon some one ultimate, and, therefore, definite point. This fact, however, we fail to perceive, on account of the absolute coincidence, in time, between the settling down upon the ultimate point and the act of cessation in thinking." Edgar Allan Poe, *Works,* 1859, Vol. II, pp. 130-1.

finitely extended. Such confusion of thought is astonishingly frequent. We therefore feel justified in insisting that there are the strongest possible reasons for ostracizing the word "infinity" altogether—at any rate, from every department of thought save theology, to serve the ends of which it seems peculiarly fitted.

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(To be continued.)